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In the Supreme Court of the United States

OCTOBER TERM, 1973

UNITED STATES OF AMERICA,

Plaintiff,

v.

STATE OF MAINE, ET AL

APPENDICES I, II, III, IV AND V TO THE AMICUS CURIAE BRIEF OF THE SPECIAL COMMITTEE ON TIDELANDS OF THE NATIONAL ASSOCIATION OF ATTORNEYS GENERAL

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APPENDIX I

OFFSHORE REVENUE SHARING:

An

Analysis of Offshore Operations
on Coastal States

Prepared for

THE GOVERNOR'S OFFSHORE REVENUE SHARING
COMMITTEE

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INTRODUCTION

INTRODUCTION

Since the late 1940s, the development of petroleum resources in the U.S. outer continental shelf (OCS) region has increased, until today, this area accounts for more than 12 percent of total U.S. petroleum production. The major portion of this development and production has been offshore from Louisiana, although it is believed that important supplies of petroleum are located beneath the OCS regions adjacent to other states, as well. These resources will be developed as the demand for petroleum continues to increase and as the need to develop new supplies in order to maintain a domestic base for petroleum consumption becomes even more pressing.

The development of petroleum resources from OCS regions produces both economic benefits and costs for adjacent coastal states. One of the major benefits is increased employment and associated incomes for people in the region, while the primary cost of such development stems from the increased demand for governmental facilities and services. The development of these petroleum resources is of particular concern because the activity is beyond the taxing authority of both state and local governments. Although corporations engaged in OCS activity must pay bonuses and royalties to the federal government, these benefits are not automatically shared with that state where the demand for state and local governmental service occurs. As a result, the increased demand for governmental facilities and services from local governments is made more severe by the inability to reach all of those responsible for the increased costs.

This study evaluates the impact of OCS activity on state and local governments in contiguous coastal states. The situation in Louisiana is examined in detail in order to determine the cost of governmental services associated with the large amount of activity in the OCS region and to indicate what other coastal states might experience

as their OCS regions are developed. This is done in the context of an understanding of the physical relationship of the OCS to the coastal areas, the petroleum potential of various OCS regions, and the national energy crisis.

SUMMARY

SUMMARY

It is believed that large amounts of oil and gas are available for potential development in offshore regions of the United States. At the present time, the United States has the right, according to international guidelines, to mine resources from the outer continental shelf (OCS) region out to the point where the water is approximately 200 meters deep. The distance from shore at which the 200-meter depth is encountered varies from one coastal area of the United States to another. In the case of the Gulf, Atlantic, and Alaskan coasts, it extends far beyond the territorial boundaries of the nation. Although most of the OCS petroleum production and development to date has been in the OCS region offshore from Louisiana, Texas, and California, there is an indication that significant reserves occur in other regions, as well.

The continued development of domestic petroleum resources both inland and offshore is made especially critical by the fact that the nation is now facing an energy crisis which already has required the importation of large amounts of petroleum from foreign countries. Since these importations and continued U.S. dependency on foreign sources have grave implications in terms of the U.S. balance of payments and national security, increased emphasis will undoubtedly be placed on future development of the OCS region, as well as inland sites. This new emphasis was expressed in the President's Special Energy Message in the spring of 1973.

The development of offshore petroleum resources is beneficial to adjacent states and local governments in that it increases the number and types of jobs and leads to higher income levels. This benefit is offset, to a degree, by the costs of increased governmental facilities and services brought about by the influx of population and industry. Although environmental considerations are of importance in this matter, this report does not include these considerations, since it is believed that they can be handled better by one of the several federal governmental agencies specifically concerned with such matters. New techniques,

surveillance, and regulation standards have substantially reduced the potential of environmental damage. Furthermore, the artificial reef effect of offshore platforms appears to have contributed favorably to commercial and recreational fishing activities.

The costs imposed on state and local governments as a result of OCS activities is of special concern since these governments are prohibited from taxing those activities which occur more than three nautical miles from the coast. The only exceptions are in the case of Texas and Florida, where the boundary is defined as being three leagues from shore (approximately 10.5 nautical miles). In the case of Louisiana, more than $267 million in income, sales, use, ad valorem, and severance taxes were foregone in 1972 because of this lack of taxing authority.

The cost of governmental services can be related to employment and population associated with OCS development. In Louisiana, for example, OCS production directly induces employment in the areas of mining, manufacturing, construction, chemicals production, and refining. These employees, in turn, induce employment in a wide range of service and trade industries. In all, it is estimated that the total employment impact of OCS activities in Louisiana is approximately 124,400 employees. When the families of these workers are included, the population impact is estimated to be approximately 391,000. In order to cover the increased governmental expenditures stemming from this additional population, the state and the local governments involved would have to collect more than $265 million in taxes from these individuals and the firms for which they work.

At the present time, the only taxes available to pay for these governmental services are collected by the state from inland operations and employees. Although the companies directly involved in OCS production pay large sums to the federal government in the form of bonuses and royalties, these are not shared with the states providing the services and facilities used. There is presently no equivalent sharing of revenues from federal OCS activities as the 37-1/2 percent shared from mining operations on federal lands within

state boundaries. In 1972 approximately $336 million in royalties was paid to the federal government by firms operating beyond the three-mile boundary offshore Louisiana.

This report supports the contention that some of the revenues collected by the federal government from OCS activities need to be shared with contiguous coastal states to compensate state and local governments for services provided to offshore operators and to encourage coastal states to provide for the orderly development of the OCS.

THE OUTER CONTINENTAL SHELF AND ITS PETROLEUM POTENTIAL

As a first step in considering the impact of the development of the outer continental shelf, it is necessary to understand the location and general boundaries of this region and its petroleum potential. Both of these aspects are discussed in this section.

Definition of the Outer Continental Shelf

The problems associated with defining the various subparts of offshore areas are rooted in the politico-economic problems associated with the use of the resources that can be exploited, the distribution of the revenue obtained by the development of these resources, and the impact of the development on other activities involving the sea, the land beneath it, and the air above it.

Geographically, the outer continental shelf is a subpart of the continental margin, a zone separating the submerged part of the continent from the deep-sea bottom. The other subparts are the continental slope and the continental rise. The continental shelf is the area between the mean low water line and the change in the inclination of the ocean floor, from out one eighth of one degree to more than three degrees, that marks the beginning of the continental slope. This occurs at various depths, usually between 130 and 200 meters, but it can occur as shallow as 50 meters and as deep as 500 meters. The continental shelf ranges in width from zero to 1500 km.[1]

For purposes of defining the area where nation-states have the right to explore for and exploit natural resources, the 1958 Geneva Convention on the Continental Shelf defined *continental shelf* as referring

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[1] International Law Association, *The Hague Conference (1970), Deep-Sea Mining, Report of the Committee, Annex A, Geological Aspects and Technical Developments*, as appearing in the *Outer Continental Shelf Report by the Subcommittee on Outer Continental Shelf to the Committee on Interior and Insular Affairs, United States Senate*, December 21, 1970, p. 137.

> (a) to the sea bed and subsoil of the submarine adjacent to the coast but outside the area of the territorial sea, to a depth of 200 meters or, beyond that limit, to where the depth of the superadjacent waters admits of the exploitation of the natural resources of the said areas;
> (b) to the sea bed and subsoil of similar areas adjacent to the coasts of islands.[2]

This definition is imprecise, however, because of the "exploitability" clause. As a consequence, there is no precise legal definition of the boundary of the outer continental shelf from an international point of view.[3] Fig. 1 is a diagrammatic profile of the continental margin.

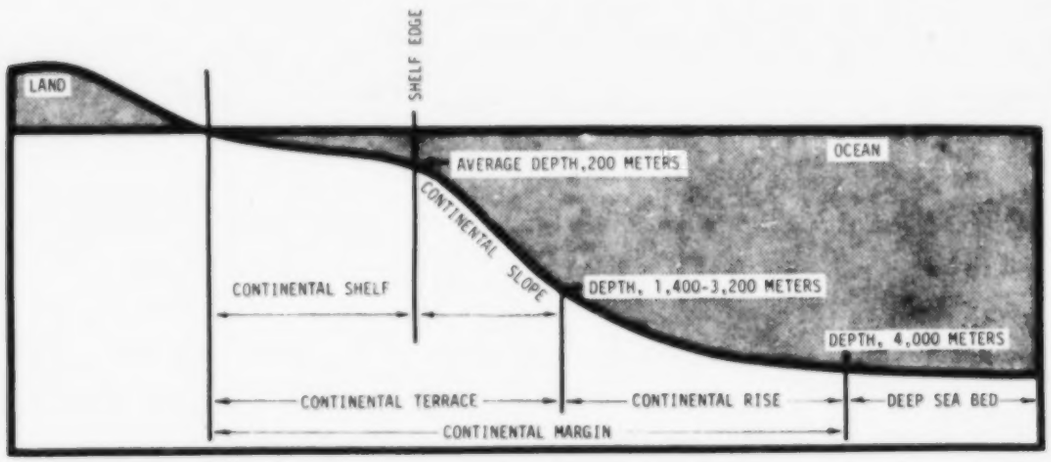

Fig. 1 DIAGRAMMATIC PROFILE OF CONTINENTAL MARGIN

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[2] *Ibid.* (but not in Annex), p. 109.

[3] *Ibid.*

This problem is lessened for purposes of this report since the focus of the report is on the impact of the development of resources from the outer continental shelf to which the United States has a right. Attention is focused on the impact that this development has or will have on coastal states of the United States. This is not to imply that the problem of international agreement is unimportant to the states. On the contrary, there will be both direct and indirect impact on the well-being of all in the United States associated with such agreement.

For purposes of this report, the outer continental shelf is defined as that area off the coast beyond the three-nautical mile territorial limit boundary and seaward to wherever the internationally agreed boundary shall be. In the special cases of Texas and the Gulf side of Florida, the territorial boundary has been established at three leagues (approximately 10.5 nautical miles), rather than three nautical miles.

This definition does not automatically resolve all problems. There may be disagreements between state governments and the federal government concerning the location of the three-nautical-mile line separating the territorial water from the outer continental shelf. This is currently the situation with respect to Louisiana and the federal government. Other boundary disputes exist between the federal government and the states of Maine, New Hampshire, Massachusetts, Rhode Island, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, California, and Alaska.

Delineation of the U.S. Outer Continental Shelf

Figure 2 shows the boundaries of the continental shelf for the continental United States, except Alaska, to the 200-meter depth. Figure 3 shows the profiles of the U.S. continental margin offshore of various cities. Table I shows the area of parts of the continental margin offshore the United States. As can be seen in these figures, there are large areas that are accessible for exploration and potential production of petroleum resources.

Fig. 2 OUTER CONTINENTAL SHELF BOUNDARIES TO THE 200-METER DEPTH FOR THE CONTINENTAL UNITED STATES, EXCEPT ALASKA

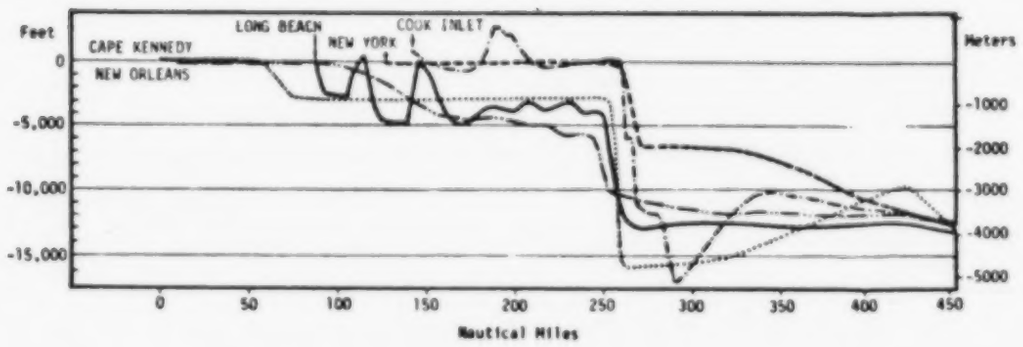

Fig. 3 PROFILES OF U.S. CONTINENTAL MARGINS

Table I

U.S. OFFSHORE AREA BEYOND STATE BOUNDARIES

State or Area	Number of Square Miles Between 3.5 Statute-Mile Limit and 200-Meter Contour*	Number of Square Miles Between 200 Meter and 2500 Meter Contours
Hawaii	400	3,600
Alaska	560,000	212,200
Washington, Oregon, and California coast	15,400	76,200
Gulf coast	107,500	84,200
Atlantic coast	122,000	102,500
Total	805,300	478,700

*10.5 nautical miles for Texas and Florida.

Source: McKelvey, *et al.*, writing for U.S. Geological Survey, Department of Interior, *Potential Mineral Resources of the U.S. Outer Continental Shelf*. (March 11, 1968). Printed in Appendix 1 of Hearings, Pursuant to S. Res. 45 Part I, p. 174.

McKelvey, *et al.*, points out that there is mineral potential beyond the 200-meter contour and that successful experimental drilling has occurred at a depth of 11,700 feet. Thus, they show the area to the 2500-meter contour, saying that

> For practical purposes in the waters bordering the United States, the continental shelves as they would be defined bathymetrically lie largely within the 2500-meter contour and conversely not much of the ocean floor and continental rise extend coastward beyond this same contour.[4]

[4]McKelvey, *et al.*, writing for U.S. Geological Survey, Department of Interior, *Potential Mineral Resources of the U.S. Outer Continental Shelf*. (March 11, 1968). Printed in Appendix 1 of Hearings, Pursuant to S. Res. 45 Part I, p. 174.

Evaluation of the Mineral Potential of the U.S. Outer Continental Shelf

The mineral potential of the U.S. outer continental shelf cannot be estimated with precision. Considerably less is known about mineral potential in this area than inland areas because in most cases there has been only limited exploration or production in the outer continental shelf areas. (See Appendix A.) Estimates that are available, therefore, are based largely on knowledge about past production and on the geological characteristics of submerged lands.

Perhaps because of the speculative nature of forming estimates of outer continental shelf resources potentials, there has not been an abundance of these estimates, and in the estimates that are available, there is a wide range of values. Most attention has been focused on the availability of petroleum resources from these areas, although other minerals may be present which can someday be recovered. Writing in 1968, McKelvey *et al.* said:

> Oil, natural gas, and natural gas liquids are by far the most valuable resources now produced from the continental shelves, and they are the resources that have the greatest prospective value for the future as well.[5]

At that time, the production of petroleum from the outer continental shelf beyond that over which the states have jurisdiction had occurred only in the Gulf of Mexico. Since then, production has occurred off the California coast on federally leased offshore lands. The appraisal of the potential of the shelves by McKelvey *et al.* was that

[5]*Ibid.*, p. 187.

Although petroleum from the outer shelves has only been produced thus far from the Gulf of Mexico, each of the other shelves, except the Hawaiian shelf, has extensive areas that are broadly favorable for petroleum. Parts of the Arctic Ocean, Bering Sea, and Pacific Ocean shelves of Alaska, for example, are contiguous with known petroliferous areas; seismic surveys already have identified extensive areas broadly favorable for petroleum in each of them, and the rich discoveries already made on state lands in Cook Inlet support the speculation that offshore Alaska has a large petroleum potential. Onshore production and preliminary exploration on state and federal leases offshore Washington and Oregon are not so encouraging but large broadly favorable areas identified from seismic surveys remain to be tested. . . .

[Several areas offshore California have promising potential for petroleum.]. . .

The production already coming from the Gulf OCS . . . speaks for its potential . . . .

As yet there has been no production on the Atlantic coastal plain, but offshore seismic studies and drilling indicate a thicker sedimentary section [than the Gulf OCS] and several major structures that are favorable for the occurrence of petroleum in several large areas between southern Florida and Georges Bank . . . . In short, the favorable area for the presence of petroleum on the U.S. shelves is large. In fact, it appears to be nearly 55 percent as large as the area of favorable ground on land and to contain a volume of sediments that is about 90 percent as large as that in which petroleum occurs on land.[6]

A recent report of the Committee on U.S. Energy Outlook of the National Petroleum Council also suggests that there are substantial petroleum resources in offshore areas. Table II indicates the oil-in-place resources, as presented in the committee's report. Table III shows the recoverable gas supply for the United States, as presented in the same report, and Fig. 4 shows the geographic location of these resources for the continental United States, excluding Alaska.

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[6] *Ibid.*, pp. 187, 189.

Table II

U.S. OIL-IN-PLACE RESOURCES, BY REGION
(1971)

Region		Ultimate Discoverable* Oil-in-Place (Billion Barrels)	Oil-in-Place Discovered to 1/1/71 (Billion Barrels)	Remaining Discoverable* Oil-in-Place	
				Billion Barrels	Percent of Ultimate
Lower 48 States--Onshore					
2	Pacific Coast	101.9	80.0	21.9	21.5
3	Western Rocky Mountains	43.6	5.8	37.8	86.7
4	Eastern Rocky Mountains	52.4	23.9	28.5	54.3
5	West Texas Area	151.6	106.4	45.2	29.8
6	Western Gulf Coast Basin	109.0	79.7	29.3	26.9
7	Midcontinent	63.0	58.4	4.6	7.3
8-10	Michigan, Eastern Interior, and Appalachians	36.5	30.5	6.0	16.4
11	Atlantic Coast	3.8	0.2	3.6	94.7
	Total	561.8	384.9	176.9	31.5
Offshore and South Alaska					
1	South Alaska including offshore	26.0	2.9	23.1	88.8
2A	Pacific Ocean	49.6	1.9	47.7	96.2
6A	Gulf of Mexico	38.6	11.5	27.1	70.0
11A	Atlantic Ocean	14.4	0.0	14.4	100.0
	Total	128.6	16.3	112.3	87.3
Total United States (Excluding North Slope)		690.4	401.2	289.2	41.9
Alaskan North Slope					
	Onshore	72.1	24.0	48.1	66.7
	Offshore	47.9	0.0	47.9	100.0
	Total	120.0	24.0	96.0	80.0
Total United States		810.4	425.2	385.2	47.5

*The term "ultimate discoverable" means the amount of resource before any was extracted, and "remaining discoverable" equals ultimate discoverable less the amount extracted.

Source: *U.S. Energy Outlook, A Report of the National Petroleum Council's Committee on U.S. Energy Outlook*, December 1972, p. 72.

Table III

U.S. RECOVERABLE GAS SUPPLY, BY REGION
(1971)

Region	Ultimate Discoverable* Gas	Gas Discovered to 1/1/71	Remaining Discoverable*	
	Trillion Cubic Feet	Trillion Cubic Feet Non-Associated	Trillion Cubic Feet	Percent of Ultimate
Lower 48 States--Onshore				
2 Pacific Coast	25.7	8.1	17.6	68.5
3 Western Rocky Mountains	50.1	17.9	32.2	64.3
4 Eastern Rocky Mountains	51.6	10.0	41.6	80.6
5 West Texas Area	101.5	27.2	74.3	73.2
6 Western Gulf Coast Basin	397.9	211.7	186.2	46.8
7 Midcontinent	223.3	104.8	118.5	53.1
8-9 Michigan, Eastern Interior	12.5	0.4	12.1	96.8
10 Appalachians	95.9	33.0	62.9	65.6
11 Atlantic Coast	4.6	0.01	4.6	99.8
Total	963.1	413.1	550.0	57.1
Lower 48 States--Offshore				
2A Pacific Ocean	3.8	0.5	3.3	86.8
6A Gulf of Mexico	201.8	45.4	156.4	77.5
11A Atlantic Ocean	54.5	--	54.5	100.0
Total	260.1	45.9	214.2	82.4
Total United States (Excluding Alaska)	1,223.2	459.0	764.2	62.5
Alaska	277.4	5.1	272.3	98.2
Total United States	1,500.6	464.1	1,036.5	69.1
	Associated-Dissolved			
Total United States	356.7	215.2	141.5	39.7
	Non-Associated and Associated Dissolved			
Total United States	1,857.3	679.3	1,178.0	63.4

*The term "ultimate discoverable" means the amount of resource before any was extracted, and the "remaining discoverable" equals ultimate discoverable less the amount extracted.

Source: *U.S. Energy Outlook, A Report of the National Petroleum Council's Committee on U.S. Energy Outlook*, December 1972, p. 91.

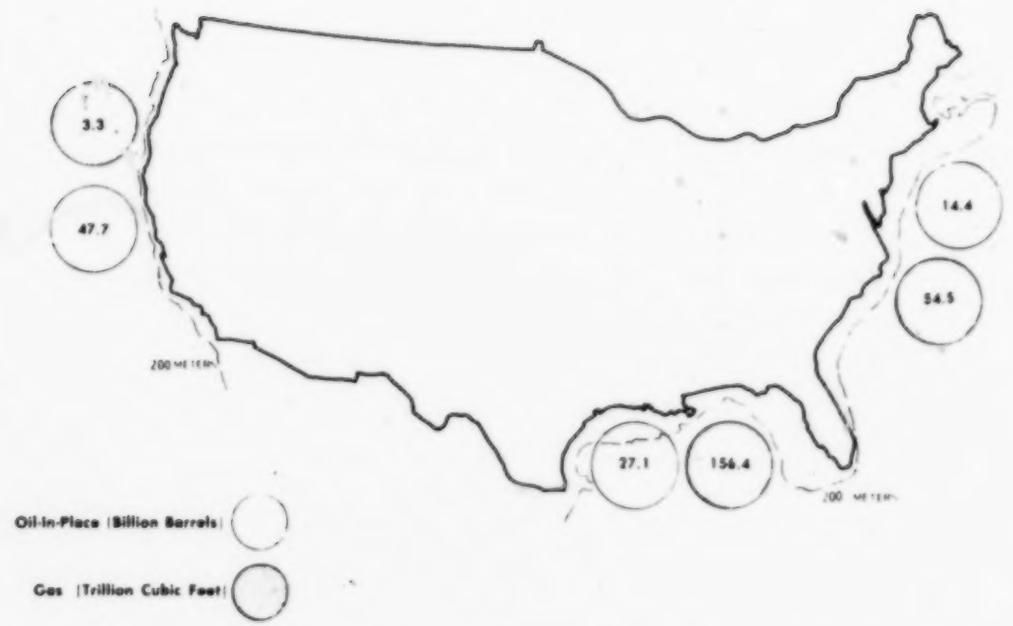

Fig. 4 REMAINING DISCOVERABLE PETROLEUM RESOURCES, OFFSHORE CONTINENTAL UNITED STATES, EXCLUDING ALASKA

The relative importance of offshore areas for potential petroleum production is made evident by examining some relationships in tables II and III. For example, the offshore areas are relatively less developed than the onshore areas: about 87 percent of the ultimate discoverable oil-in-place is in the remaining discoverable category for the offshore areas, and about 82 percent of the ultimate discoverable gas is in the remaining discoverable category. In contrast, the onshore relationships for the lower 48 states are about 32 percent and 57 percent, respectively, for the same variables.

Another interesting relationship can be derived from these tables that may portend significant impact on coastal states. Approximately 23 percent of the estimated total remaining discoverable oil-in-place for all the United States is offshore states in the lower 48 states. Approximately 18 percent of the estimated remaining discoverable gas is estimated to be in the same area. Also, as can be seen in the tables, the offshore Alaska area is very significant.

The above relationships are based on one set of estimates of potential petroleum resources, and of course there are others. Regardless of the source of the estimate, the continental shelves are estimated to contain substantial reserves and can be expected to be a significant portion of the total available to the United States.

THE NATIONAL ENERGY CRISIS

It is nationally recognized that the United States is currently faced with a serious energy problem. The demand for oil and natural gas, for example, is continually spiraling upward while the supply of such fuels is increasing less rapidly. This situation has resulted, in recent years, in an unprecedented amount of oil imports. Besides the increasing scarcity of oil and natural gas, there is a pronounced nationwide lag in the production of nuclear power. The mining of coal is being increasingly criticized on an ecological basis, thereby limiting the supply of this important energy source. In the area of synthetic fuels, the United States is decades away from mass production. All of these facts emphasize the scope and nature of the present energy crisis and are generally indicative of an increased scarcity of such resources in the future. This scarcity will have a significant impact upon not only the economic growth of the nation, but also national security and the overall standard of living.

At the present time, the five primary sources of U.S. energy supplies are petroleum, natural gas, coal, nuclear energy, and hydropower. Of these, petroleum is foremost, in that it satisfies as much as 75 percent of the U.S. energy requirements for all purposes. Domestic production of petroleum, however, is insufficient to meet current needs, and all indications are that the deficit will become even worse in the future. In order to decrease this deficit, the United States has recently begun to import petroleum from foreign sources. Although this has proved to be a short-range solution to the problem, there are long-range problems because of uncertainties regarding price, availability, dependability, and reliability. Also, as imports increase, there is a corresponding increase in balance-of-trade problems which have serious effects upon U.S. monetary and foreign policies.

The balance of payments implications associated with importing large amounts of petroleum on a permanent basis can be unfavorable, and these implications are, at best, difficult to trace. It is not appropriate to analyze the impact of importing petroleum by simply taking the volume times the unit price. Consideration must be given to the probable use of the dollar earnings including the purchases of U.S. goods and services and third country return flow.

Estimates of the size of the balance of payments burden over time vary. One set prepared by the U.S. Department of the Interior shows that the net deficit associated with the importation of petroleum will be approximately $2.9 billion in 1975 and $6.6 billion in 1980.[7] Another estimate by Dr. Arlon R. Tussing, prepared at the request of U.S. Senator Henry M. Jackson, suggests that net outflows may be as high as $10 billion by 1980.[8] A study by the Chase Manhattan Bank indicates that the balance of payments deficit associated with importation of petroleum could reach $25 billion by 1985.[9]

The balance of payments problems are perhaps not so troublesome as the implications associated with importing petroleum from relatively unpopulated countries. These nations will accumulate large liquid balances which could cause problems in the international money markets. One way of mitigating these problems would be to encourage these countries to invest in American businesses, but there is no way to force this and that alternative is not without problems of its own.[10]

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[7] *Questions and Policy Issues Related to Oversight Hearings on the Administration of the Outer Continental Shelf Lands Act Held by the Senate Committee on Interior and Insular Affairs*, Pursuant to S. Res. 45 (March 23, 1972), p. 91.

[8] *Toward a Rational Policy for Oil and Gas Imports*, Committee on Interior and Insular Affairs, U.S. Senate, Pursuant to S. Res. 45 (1973), p. 5.

[9] John G Winger, *et al.*, *Outlook for Energy in the United States to 1985*, Chase Manhattan Bank (June 1972), p. 51.

[10] *Toward a Rational Policy for Oil and Gas Imports, op. cit.*

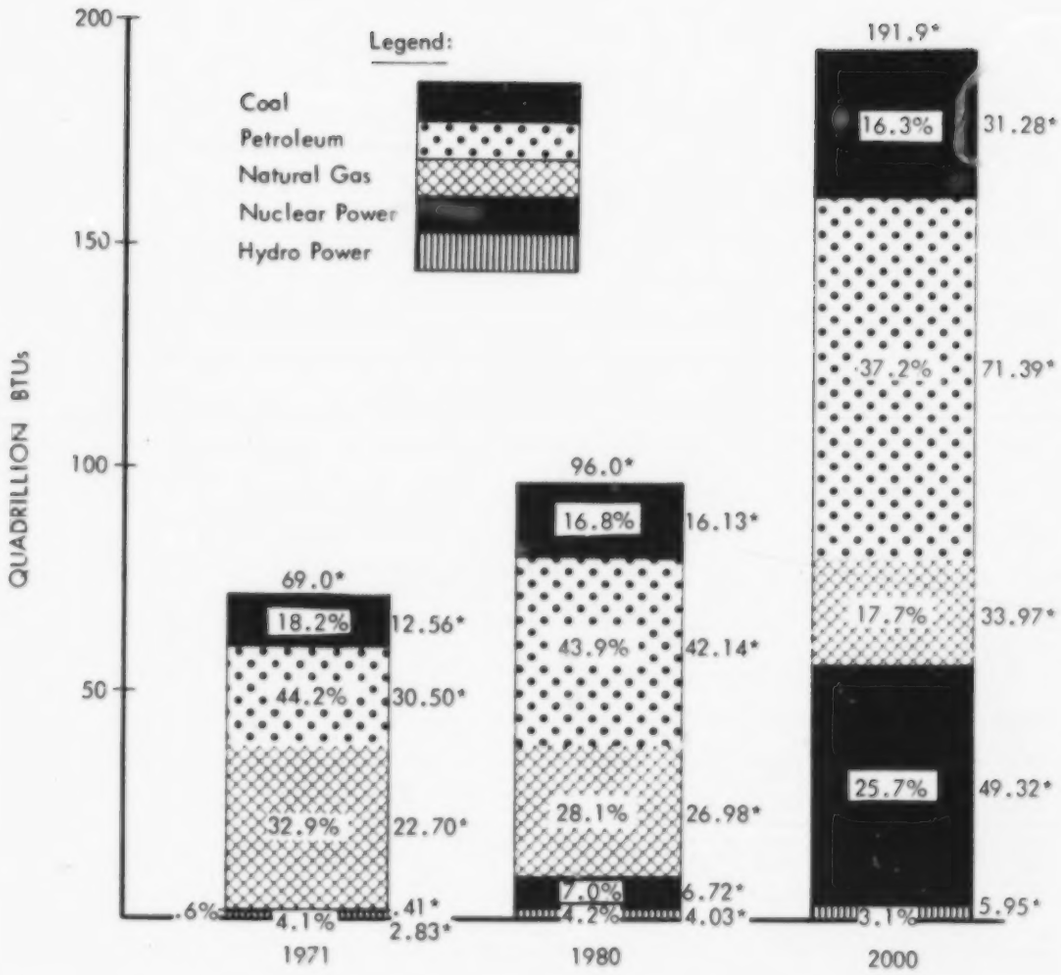
The United States currently has a potential coal resource base of nearly 800 billion tons. At the present rate of consumption, this supply is adequate to meet demands for the next 1,000 years. Despite this vast reserve, however, the United States is on the threshold of a national coal shortage. This is due to a number of economic and political factors. Clearly, if the required funds are to be raised to generate increased capacity, the price of coal will have to be raised substantially.

The last two sources of energy (nuclear and hydropower) are both used primarily to generate electricity; and, consequently, are not considered primary forms of energy. Projections are that in the future nuclear power will be the major input utilized to produce electricity. Although this will ease the demand on other arear in many respects, it is not a total solution to the energy problem. Hydroelectric projects in 1970 accounted for nearly 15 percent of the electricity produced in that year. This figure is expected to decrease, however, to approximately eight percent by 1985.

The present energy crisis is due, in part, to the high per capita consumption of energy in the United States. Although the United States contains less than six percent of the world population, it is by far the largest consumer of energy, with a daily requirement of nearly 400 million BTUs. On a per capita basis, this is eight times as much energy as that used by the rest of the world combined. In 1971, the United States used a total of 69 quadrillion BTUs of energy, according to the U.S. Department of the Interior. The consumption, by source, is shown in Fig. 5 for the year 1971 and is projected for the years 1980 and 2000. It can be seen that although the percentage of oil and gas consumed is projected to decrease through the years, the absolute value consumed will increase from 54 quadrillion BTUs in 1971 to 105.4 quadrillion BTUs in 2000.

Despite the current energy crisis, the U.S. Department of the Interior states that there is still an abundance of basic energy resources:

> Our Nation has been bountifully endowed with a large resource base of fuel minerals, which includes petroleum, natural gas, coal, oil shale, uranium and thorium. The energy content of known resources of these fuel minerals amounts to 13,100 quadrillion BTUs, enough to last 190 years at the rate of consumption in 1970.



*In Quadrillion BTUs.

Source: *U.S. Energy Through the Year 2000*, U.S. Department of the Interior, December 1972.

Fig. 5 U.S. ENERGY CONSUMPTION, BY SOURCE (1971-2000)

> The potential resources of fuel minerals that are on the verge of use but await technologic advance will last 16,500 years at the rate of energy use in 1970. A major national objective, then, is to identify and delineate these resources and to develop the technology for utilizing them as they are needed.[11]

In view of this potential, the energy crisis is apparently not altogether due to a lack of availability, but rather to a lack of recovery. In other words, the reserves are not being found or developed at the rate required to keep pace with the rapid increase in energy demands. As indicated in Fig. 6, exploratory drilling in the United States has declined steadily since 1956. This decline stems primarily from the lack of economic incentives and technological capabilities; namely, (1) diminishing economic incentives for petroleum development; (2) federal regulation of natural gas prices at the wellhead; (3) declining real price of domestic crude; (4) increasing environmental pressures; and (5) rising costs within the industry as a whole.

The National Petroleum Council in 1972 projected that energy demands will increase 4.2 percent annually between 1970 and 1985. The significant determinants involved in this long-range projection were (1) economic activity measured by the gross national product; (2) cost of energy; (3) population; and (4) environmental controls. (Table IV contains an estimate of energy demanded by certain consuming sectors, through the year 1985.)

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[11] U.S. Department of the Interior, Reprint from Sun Oil Company's *Petroleum and the Capital Crunch*, p. 6, December 1972.

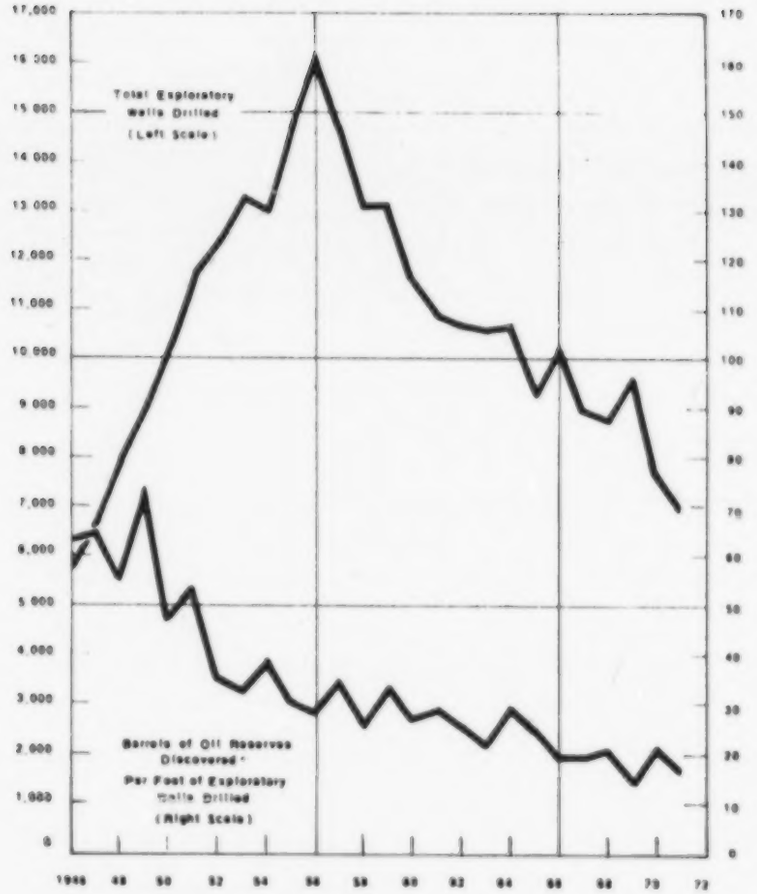

Fig. 6 EXPLORATORY DRILLING AND RESULTS IN THE UNITED STATES (1946-1972)

Source: U.S. Department of the Interior.

Table IV

PROJECTIONS OF U.S. ENERGY DEMAND
BY MAJOR CONSUMING SECTOR

Sector	Demand Volume (Quadrillion BTUs)		
	Actual 1970	Estimated Intermediate 1980	Estimated Intermediate 1985
Residential/Commercial	15.8	22.4	26.6
Industrial	20.0	26.8	30.9
Transportation	16.3	23.9	28.3
Electric Conversion	11.6	22.8	30.2
Non-Energy	4.1	6.7	8.9
TOTAL	67.8	102.6	136.0

Source: *U.S. Energy Outlook*, National Petroleum Council, December 1972.

In summary, the current shortage of primary energy supplies is projected to become increasingly worse in the near future. This situation will occur despite corrective actions now being taken, since it will be some time before the effect of these actions is felt. In the meantime, it is essential that all interests--both public and private--cooperate in making and supporting necessary policy changes affecting the consumption of these resources.

The President's Special Message on Energy has gone a long way toward finding solutions to the energy crisis. The President noted that the increase in domestic energy production depends in large measure on how quickly the OCS can be developed. To encourage this development, he has asked the Interior Department to triple annual acreage offerings on the OCS by 1979 and has recommended removal of the Federal Power Commission's control of wellhead prices of natural gas to be dedicated to interstate sales. These recommendations have already led the Interior Department to

announce plans to lease up to one million acres in January, May, and September of each year starting in 1974. Furthermore, nominations were accepted for new tracts between 200- and 600-meter depths off Louisiana in June 1973. This will be the first sale of mineral leases outside the continental shelf. Nominations have also been received for tracts contiguous to Mississippi, Alabama, and Florida. Additional sales of leases are planned for offshore California and Alaska.

IMPACT OF OUTER CONTINENTAL SHELF ACTIVITIES ON U.S. COASTAL REGIONS

Introduction

Offshore mining activity must have contact with certain land-based operations and activities, beginning with the initial explorations and extending through the drilling and production stages. Boats need harbors; rigs must be constructed; and when the resource is produced, it must be brought to land for processing and consumption.

This report focuses on the economic impact of OCS activity on a local-regional area. Specifically, it is concerned with the cost of governmental services which are demanded as a result of OCS activity.

Ecological Impact

The impact of offshore mining activities on the ecological system has been widely publicized in recent years and has been discussed at length in the news media and government hearings. Attention has been focused on the short- and long-term implications of possible oil spills; the impact of developing channels, laying pipelines, building rigs, and disposing of waste materials; and the effects of these activities on marsh land and on fish and wildlife habitats, on the competing uses for land used in connection with the development of these resources; and on the aesthetic appearance of the coastal regions.

These environmental considerations involve economic issues, such as the onshore loss of land caused by the channelization of rivers and marshes. This factor may be significant economically for many coastal states and, if the marshes are not adequately protected, could endanger a vital link in the food chain. At the same time, it should be recognized that offshore platforms and associated facilities provide a man-made reef which attracts and provides protection for smaller fish. It is believed that the offshore platforms have contributed to the increasing yields of commercial fishing off the Louisiana coast. Table V presents a comparison of Louisiana fish catch with that of other Gulf states and the United States. The data indicates that Louisiana's fish catch has increased in relative importance over the past two decades during the period of active offshore exploration.

Table V

LOUISIANA FISH CATCH COMPARED WITH THAT OF OTHER GULF STATES AND THE UNITED STATES

	1950	1960	1970
Louisiana			
Quantity (thousands of pounds)	307,366	566,411	1,107,251
Value (thousands of dollars)	21,575	25,949	61,072
Percent of Gulf States			
Quantity	53.9	44.7	65.2
Value	42.8	30.4	36.7
Percent of United States			
Quantity	6.3	11.5	22.6
Value	6.2	7.3	10.0

Source: U.S. National Oceanic and Atmospheric Administration, *Fishery Statistics of the United States.*

Ecological or environmental impact, including the aesthetic and economic aspects of the problem, should not be minimized in considering how and/or if to proceed with the development of offshore resources in various areas. To do otherwise could have grave implications for the nation. This report, however, focuses on the economic impact of the outer continental shelf activity on a local-regional area, and is concerned primarily with the costs generated by that activity where the generators are, in part, beyond the taxing reach of state and local governments.

Economic Impact

There is an on-going economic impact associated with outer continental shelf activity, not only as it relates to the supplying of fuel for the nation, but also as it affects the coastal regions. The impact is on individual port facilities, roads, and the myriad public services provided to the individuals and firms associated with outer continental shelf activity, such as education and police protection.

As is the case with most types of economic development, there are both positive and negative aspects associated with outer continental shelf activities. The positive aspects are similar to those associated with the development of the same natural resources on land. In short, these activities result in employment opportunities, both directly and indirectly; and they foster the development of supporting and complementary businesses. All of this results in a better economic climate.

On the other hand, there is a significant difference between on-land activities or offshore activities within the three-mile limit and the outer continental shelf activities. State and local governmental units are not able to tax firms engaging in outer continental shelf activity, although these firms have a direct and indirect impact on the services required in the coastal region municipalities, parishes or counties, and the state. These impacts have a bearing not only on the need for port facilities, schools, medical facilities, and environmental management services, but also on the whole range of governmental activities.

In setting up a tax structure to support the expenditures deemed necessary and desirable in a society, government seldom attempts to draw precise one-for-one relationships between taxes paid and benefits received. For example, persons pay property taxes which are used, in turn, to support education. The taxes are not based on how many children are in a household; rather, it is reasoned that there is social benefit from having education available for all children. Even in cases where there are more directly traceable benefits between taxes and services, as in the case of highway use taxes, the tax is based on such variables as fuel consumption and weight--neither of which may be directly related to the benefit the user sees in being able to use the highway system. So it is with nearly all taxes. The revenues from a whole array of taxes are needed to finance the nation's collective expenditures.

If people in various parts of the nation are to consume collectively such benefits as schools, sewer and water systems, civic and recreational facilities, and transportation facilities, they obviously must pay for them. Of course, they do so through a variety of taxing methods. In an industrialized area, industry will pay a portion of the taxes needed to provide services. The consumers or users of the products of these industries may, in turn, pay a price that reflects this tax need at the point of production. Just as the consumers of the products are in a sense causing the demands on public services in a particular area, so they may be in a sense paying some of the taxes.

The production of petroleum from the outer continental shelf does and will generate social costs, regardless of where the area is. The magnitude of the impact of service-using outer continental shelf activities on coastal regions will vary, depending upon how the tax structure of the region is set up and the relative importance of the outer continental shelf activity to other economic activities. *Regardless of the tax or economic structure, however, someone must subsidize the supplying of service to outer continental shelf users relative to what would be the case if taxing powers were present.*

The groups paying for the facilities and services used, but not paid for by outer continental shelf activity, will be, in the main, the residents and other firms in the coastal region. Indeed, the employees of the outer continental shelf firms themselves will be among those doing the subsidizing. There is no equivalent sharing of revenues from federal lands offshore to the 37-1/2 percent mineral revenue sharing on federal property within state boundaries.

It should be pointed out that the firms engaged in outer continental shelf activity may be paying a significant amount of federal "taxes" in the form of bonuses, rentals, and royalties. It is not within the scope of this report to analyze the question of whether these payments are too large, too small, or just right. The question, instead, is related to the *distribution* of these receipts and costs of state and local government services.

Economic Impact in Louisiana

An analysis of the impact of OCS petroleum development on Louisiana may be beneficial in planning for the increased demand for services induced by the development of OCS resources in other areas, and it may also help in evaluating various ways of distributing the revenues produced. Although much of the outer continental shelf off the Louisiana coast has been developed, this is not the case in other coastal regions. If the nation tries to develop more of its domestic petroleum resources, other coastal states will experience the positive and negative impacts associated with the development.

The impact of the OCS petroleum development on Louisiana can be viewed in several ways. One is to examine the nature and relative importance of OCS production. A second is to estimate the number of persons employed in directly and indirectly related activities associated with OCS development. A third is to determine the taxes foregone because of a lack of territorial jurisdiction. A fourth is to assess the impact on governmental services caused by the development of OCS resources.

Production

Louisiana historically has been a leader among U.S. petroleum-producing states in the exploration, drilling, and recovery of oil and natural gas, and is today strengthening this position of leadership, as indicated by the number of producing oil and gas wells in the state and by increases in the volume of production from these wells. In 1970, for example, the state had 28,278 oil wells in production, which is more than twice the 1950 figure of 11,860 (Table VI). The number of producing gas wells more than quadrupled during the same period--from 2,550 in 1950 to 10,343 in 1970. These increases in the number of wells have been accompanied with corresponding increases in the volume of oil and gas liquids and gas, as indicated by the data in Table VII. Between 1950 and 1970, the volume of oil and gas liquids in the state increased from 240,174 thousands of barrels to 1,156,500 thousands of barrels. During the same period, the volume of gas production in the state soared--from 1,140,693 millions of cubic feet to 7,965,236 millions of cubic feet. Similarly large increases occurred in the federal outer continental shelf and the state offshore regions.

Table VI

NUMBER OF PRODUCING OIL AND GAS WELLS IN LOUISIANA
(1950-1970)

Year	Total Number in Louisiana		Total Number Offshore		Number of Federal Outer Continental Shelf		Number of State Offshore	
	Oil Wells	Gas Wells	Oil Wells	Gas Wells	Oil Wells	Gas Wells	Oil Wells	Gas Wells
1950	11,860	2,550	70	1	21	1	49	0
1960	24,682	6,479	2,229	311	963	223	1,269	88
1970	28,278	10,343	4,783	1,635	3,614	1,303	1,171	332

Source: Summarized by GSBI from the [illegible], Vol. XXX, No. 2, December 1971.

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Table VII

ANNUAL VOLUME OF PRODUCTION FROM OIL AND GAS WELLS IN LOUISIANA (1950-1970)

Year	State		Federal Outer Continental Shelf		Louisiana Offshore	
	Oil and Gas Liquid (Thousands of Barrels)	Gas (Millions of Cubic Feet)	Oil and Gas Liquid (Thousands of barrels)	Gas (Millions of Cubic Feet)	Oil and Gas Liquid (Thousands of Barrels)	Gas (Millions of Cubic Feet)
1950	240,174	1,140,693	722	845	3,593	2,268
1960	429,911	2,994,862	43,788	287,442	42,334	120,943
1970	1,136,500	7,965,236	334,423	2,299,889	72,657	615,969

Source: Summarized by OSRI from Oil and Gas Conservation Bulletin, Vol. XXX, No. 2, December 1971.

The location of producing oil and gas wells in Louisiana is shown in Figure 7 and Figure 8, respectively. As indicated, the greatest number of Louisiana wells are located on-shore. Of offshore wells, the greatest number is located within the federal outer continental shelf area, rather than the state offshore area. The number of oil wells in the federal OCS increased from 30 percent of the offshore total in 1950 to 75 percent in 1970. The number of gas wells is arrayed in a similar manner.

Although Louisiana production of oil and gas has increased significantly in recent years, the balance of production has shifted noticeably from Louisiana-controlled areas to the federal OCS areas. Table VIII indicates production statistics for the two areas as a percentage of state totals, for the period 1950-1970. As shown, the amount of oil production in the federal OCS increased from 0.3 percent of the state total in 1950 to 29.3 percent in 1970, while the amount in state-controlled offshore regions only increased from 1.5 percent to 6.8 percent. By the same token, natural gas production increased in the federal OCS from 0.1 percent to 28.9 percent of the state total, in contrast to an increase of only 0.2 percent to 7.7 percent in the state-controlled offshore. These figures clearly indicate that the major portion of the state's increased production is taking place in areas outside the taxing jurisdiction of the state.

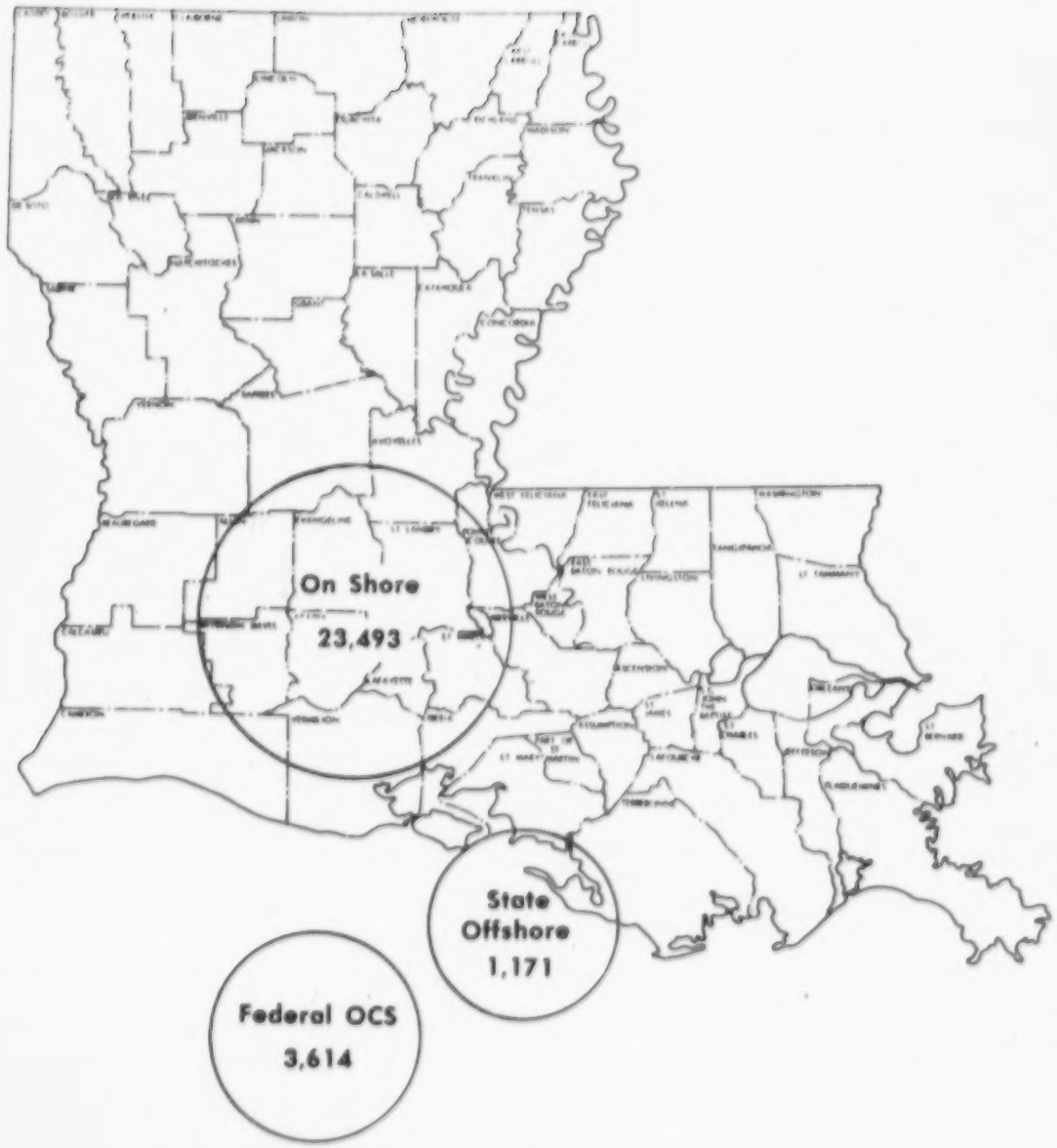

Fig. 7 NUMBER AND GENERAL LOCATION OF PRODUCING OIL WELLS IN LOUISIANA, 1970

Fig. 8 NUMBER AND GENERAL LOCATION OF PRODUCING GAS WELLS IN LOUISIANA, 1970

Table VIII

STATE OFFSHORE AND FEDERAL OCS PRODUCTION OF OIL AND GAS,
(As Percent of the Louisiana Total)

Year	Federal OCS		State Offshore	
	Oil	Gas	Oil	Gas
1950	.3	.1	1.5	.2
1960	10.6	9.6	9.9	4.0
1970	29.3	28.9	6.8	7.7

Source: Gulf South Research Institute.

Table IX indicates the dramatic increase in the amount of petroleum production in the Gulf of Mexico offshore from Louisiana during recent years. As indicated by these data, the major portion of this increase has been in federal outer continental shelf areas. Prior to 1954, for example, 98 percent of the oil and condensate and 78 percent of the gas produced offshore from Louisiana were derived from state-controlled areas. By 1960, however, these figures had dropped to 44 percent and 33 percent, respectively. By 1971, only 14 percent of the oil and condensate and 17 percent of the gas came from Louisiana-controlled areas.

Moreover, the absolute number of barrels of oil and condensate produced increased until 1968 when their production leveled off and began to decline--a fact which might indicate that most of the resources within the state's jurisdiction may have already been extracted (Fig. 9). This shift in production from state to federal lands has a major impact on the revenue structure of Louisiana.

Other states currently involved in petroleum production on the outer continental shelf are Texas and California. Table X illustrates the magnitude of the Louisiana OCS operations in relation to production in Texas and California. The production figures are separated into oil, condensate, and natural gas. Louisiana is ranked first in all three areas, producing 91.8 percent of the oil, 96.6 percent of the condensate, and 94.8 percent of the gas in the OCS areas. Louisiana's OCS oil production exceeded 358 million barrels, while second-ranked California produced only 31 million barrels. Texas ranked second to Louisiana, in barrels of condensate produced and in millions of cubic feet of natural gas.

Table IX

TOTAL PRODUCTION OF GAS AND OIL AND CONDENSATE IN LOUISIANA
(State Offshore and Federal Outer Continental Shelf)

Year	Gas			Oil and Condensate		
	Millions of Cubic Feet	Percent		Thousands of Barrels	Percent	
		State	OCS		State	OCS
Prior	91,675	78	22	54,803	98	2
1954	81,325	31	69	15,926	79	21
1955	121,279	33	67	25,731	74	26
1956	136,527	39	61	40,906	73	27
1957	160,472	49	51	52,835	70	30
1958	233,967	45	55	57,381	57	43
1959	329,280	37	63	72,793	51	49
1960	408,388	33	67	88,122	44	56
1961	458,481	31	69	103,197	38	62
1962	588,361	23	77	126,801	29	71
1963	706,545	20	80	149,087	30	70
1964	783,474	21	79	173,709	29	71
1965	871,124	26	74	199,293	27	73
1966	1,265,899	24	76	243,080	23	77
1967	1,655,223	34	66	284,033	23	77
1968	2,057,291	31	69	329,922	20	80
1969	2,478,745	26	74	365,691	18	82
1970	2,800,104	19	81	398,378	16	84
1971	3,176,740	17	83	448,772	14	86

Source: Louisiana Department of Conservation and U.S. Department of Interior.

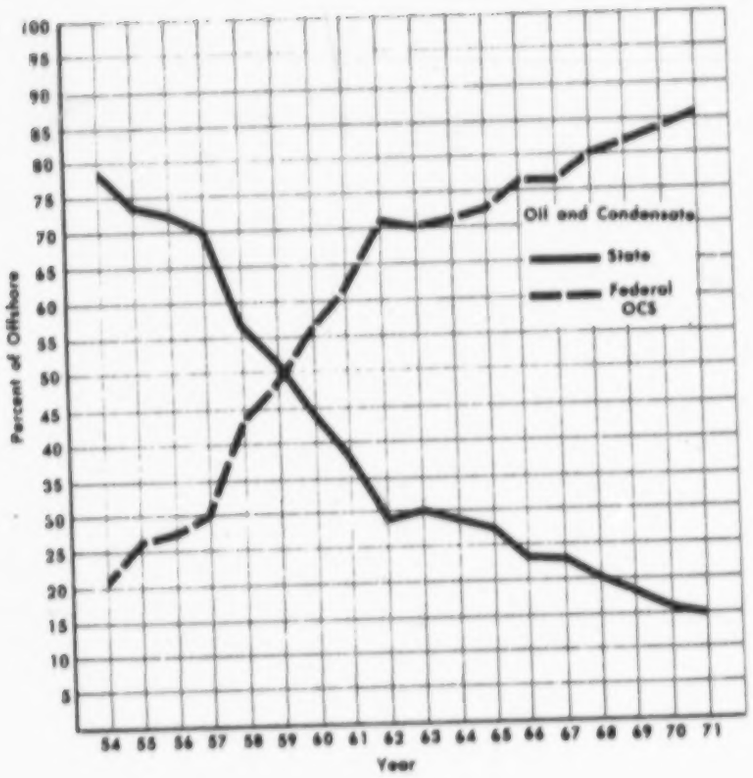

Fig. 9 NUMBER OF BARRELS OF OIL AND CONDENSATE PRODUCED IN LOUISIANA (1954-1971)

Table X

OCS PETROLEUM PRODUCTION, 1972

State	Oil Barrels		Condensate Barrels		Gas (millions of cubic feet)	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
California	31,103,548	8.0	--	0.0	15,671,479	0.6
Louisiana	358,366,080	91.8	27,394,271	96.6	2,634,014,031	94.8
Texas	710,463	0.2	974,584	3.4	127,357,908	4.6
Total	390,180,091	100.0	28,368,855	100.0	2,777,043,418	100.0

Source: U.S. Department of the Interior, Bureau of Land Management.

Table XI shows the 1967 to 1972 values of petroleum production from federal OCS areas offshore from Louisiana and the amount of royalties associated with the production. Royalty payments alone more than doubled during the period--from $149 million in 1967 to $336 million in 1972. In addition, bonuses and rentals have been received on the areas producing this petroleum. Coupled with the depletion of resources within the Louisiana three-mile limit, these rapidly increasing figures represent grave problems for the State of Louisiana.

Table XI

VALUE OF PRODUCTION OF PETROLEUM FROM THE OUTER CONTINENTAL SHELF BEYOND THE JURISDICTION OF LOUISIANA AND CORRESPONDING ROYALTY PAYMENTS BY YEAR

Year	Value	Royalty
1967	$ 883,852,538	$149,073,159
1968	1,093,049,920	190,904,928
1969	1,322,256,575	225,285,281
1970	1,527,370,429	259,13[illegible],087
1971	1,902,431,031	319,150,988
1972*	2,013,382,419	336,203,550

*Includes both disputed and undisputed area.

Source: U.S. Geological Survey, 1973.

Employment

In 1971, a total of 49,685 persons were employed in mining in Louisiana (almost all of which was petroleum mining). Of this number, 39,397 (or 79 percent) were in the 38 southern parishes of the state. The importance of mining employment can be seen in Table XII. Statewide, mining accounts for approximately 6.8 percent of the employment subject to the Louisiana Employment Security Law. As can be noted, the impact varies from parish to parish. In some coastal parishes, such as St. Mary and Cameron, mining employment has a much larger direct impact on employment. The relative importance is shown in figures 10 and 11 for the southern parishes of the state.

The number of persons employed in mining associated with OCS activity is estimated to be at least 15,000. This estimate was determined by analyzing the results of a mail questionnaire, interviews, and petroleum production statistics. A discussion of the methodology underlying this estimate and those for other employment categories is contained in Appendix B.

In addition to those employed in mining, there are many persons employed in other activities that are related to or dependent upon OCS activity in various ways. A large number of persons are engaged in manufacturing and constructing rigs and platforms, service boats, and other equipment. A significant portion of the employment in the production of chemicals and allied products, as well as that in refining petroleum, is related to OCS production. All of these employees generate other employment because they and their families need housing, goods, and services.

Table XII

PERCENTAGE DISTRIBUTION OF LOUISIANA EMPLOYMENT, BY PARISH* (1971)

Parish	Mining	Contract Construction	Manufacturing	Transportation, Communication, Public Utilities	Wholesale and Retail Trade	Finance, Insurance, Real Estate	Services and Miscellaneous
STATEWIDE	6.8	9.7	23.4	11.2	30.1	5.8	13.0
Acadia	8.3	6.6	24.7	9.7	37.4	3.9	9.3
Allen	3.2	3.7	60.0	6.6	17.2	3.4	5.9
Ascension	1.8	15.3	39.5	9.2	23.6	3.2	7.4
Assumption	5.9	3.3	70.4	1.6	12.1	3.2	3.5
Avoyelles	1.6	8.5	28.8	8.3	28.3	9.8	14.7
Beauregard	3.6	3.4	37.4	11.2	33.8	3.2	7.3
Calcasieu	4.7	14.4	33.2	8.7	25.6	3.9	9.5
Cameron	42.3	5.2	17.6	16.8	5.0	1.4	11.7
East Baton Rouge	0.7	15.1	24.4	6.7	30.1	7.1	15.9
East Feliciana	1.6	17.7	39.7	5.3	22.2	4.4	9.1
Evangeline	4.8	5.3	15.2	9.9	31.2	4.4	28.9
Iberia	22.0	6.8	19.9	10.3	29.1	3.5	8.4
Iberville	3.5	29.0	32.8	4.6	15.6	1.9	12.6
Jefferson	7.1	9.5	24.0	9.2	33.0	2.5	9.7
Jefferson Davis	13.1	6.6	17.6	10.4	33.1	4.7	14.3
Lafayette	19.3	8.4	7.9	11.7	34.3	4.0	14.4
Lafourche	15.4	4.1	20.1	22.6	26.8	3.4	7.6
Livingston	0.9	17.6	29.4	4.0	32.5	4.7	11.0
Orleans	4.0	7.1	13.9	16.5	31.7	9.4	17.4
Plaquemines	35.6	13.8	12.8	16.1	10.3	0.8	10.4
Pointe Coupee	15.6	11.1	18.0	5.4	39.1	4.7	6.1
Rapides	1.5	9.9	23.0	7.0	35.9	7.0	15.7
St. Bernard	1.6	8.2	54.5	4.8	21.5	2.9	6.6
St. Charles	3.0	15.9	45.1	14.9	13.4	2.0	5.7
St. Helena	8.5	17.6	35.8	14.0	19.0	2.8	2.2
St. James	6.7	11.1	63.7	2.3	12.6	1.5	2.1
St. John	0.6	3.8	50.0	11.3	22.8	1.7	8.8
St. Landry	11.8	7.4	16.2	6.5	41.9	3.2	11.0
St. Martin	14.8	16.0	26.0	1.7	28.9	2.4	8.2
St. Mary	20.8	8.3	19.6	15.5	22.8	2.1	10.9
St. Tammany	3.0	11.4	26.5	6.6	34.4	4.9	15.7
Tangipahoa	0.8	5.4	26.8	4.2	48.6	4.3	9.8
Terrebonne	22.1	5.9	18.6	11.6	29.4	2.5	9.8
Vermilion	17.1	6.5	18.5	11.9	30.9	3.7	11.4
Vernon	0.4	6.5	9.1	15.3	44.6	3.2	18.9
Washington	1.9	4.2	52.8	5.1	24.4	3.5	6.1
West Baton Rouge	0.0	6.6	12.2	56.5	18.6	1.9	4.2
West Feliciana	1.3	11.5	78.1	0.1	7.1	0.7	1.2

*Includes employment categories covered by the Louisiana Employment Security Act.

Source: Employment Wages, Louisiana Department of Employment Security, August 1972.

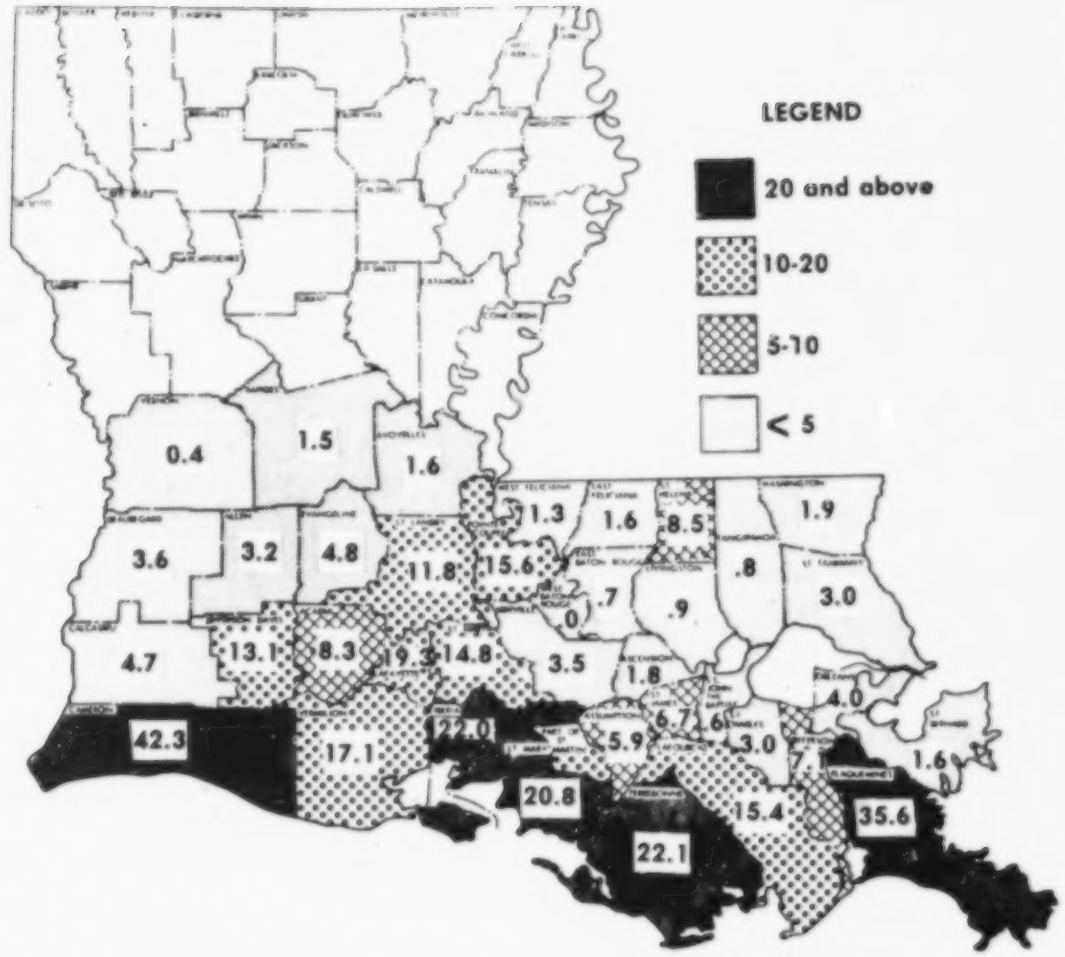

Fig. 10 PERCENTAGE MINING EMPLOYMENT OF TOTAL PARISH EMPLOYMENT

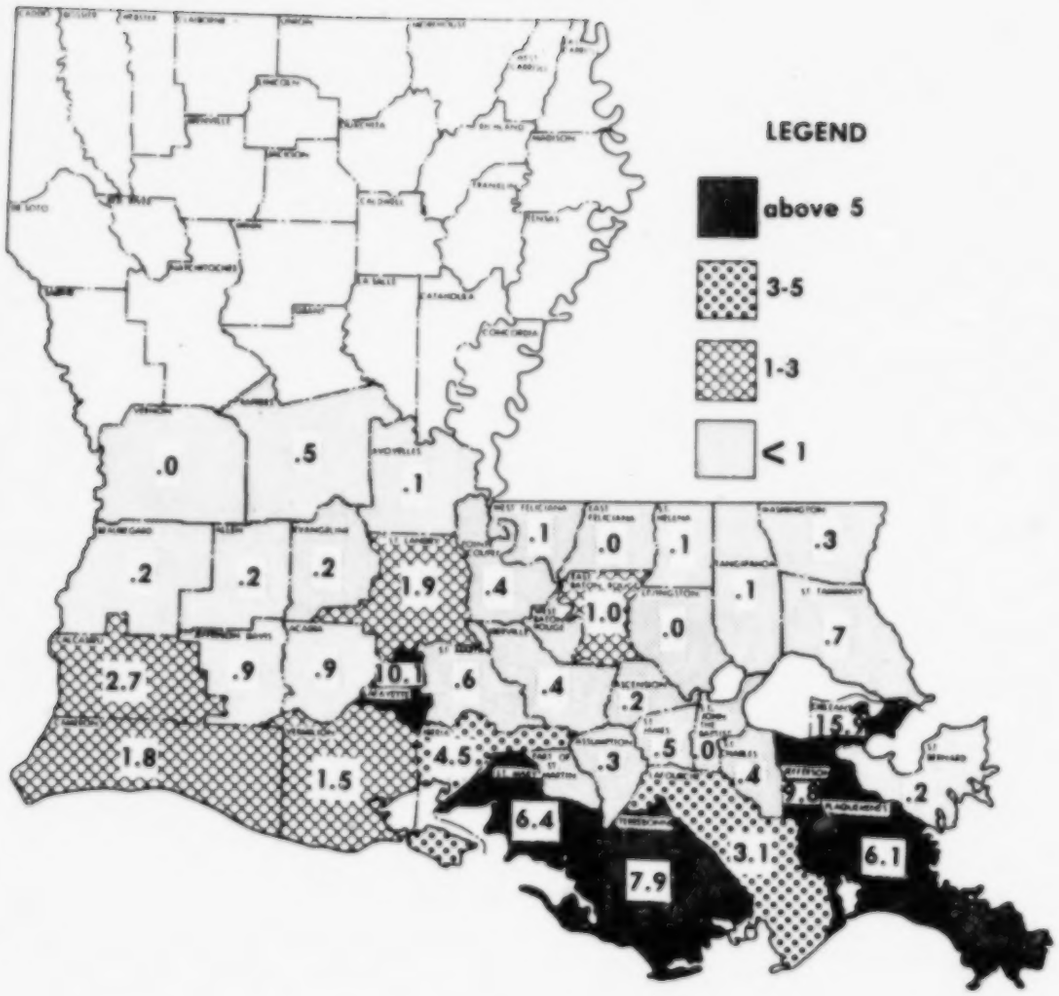

Fig. 11 PERCENTAGE MINING EMPLOYMENT OF PARISH OF TOTAL STATE MINING EMPLOYMENT

The estimated number of persons employed in these various categories are shown in the following tabulation:

Employment Category	Estimate of Number Employed as a Result of OCS Activity
Mining	15,000
Manufacturing	10,500
Construction	4,700
Chemicals and allied products	7,300
Refining	2,800
Subtotal	40,300
Supporting employment	84,100
Total	124,400

Taxes Foregone

Louisiana, like other coastal states, cannot tax the activity conducted on the outer continental shelf beyond the three-mile limit (three leagues for Texas and the Gulf side of Florida). Although the impact of these activities is reflected in the demand for services, as discussed previously, the state must forego the tax revenues that it would collect if it had complete control over the outer continental shelf activity. The taxes foregone in the case of Louisiana include (1) severance, (2) income, (3) corporate franchise, (4) sales and use, (5) occupational license, (6) ad valorem, and (7) miscellaneous, which includes primarily power use taxes and a small amount of natural gas franchise tax.

The various sections of the Louisiana Department of Revenue estimate that the taxes foregone for 1972 would have amounted to $183,488,000. The following tabulation indicates the amounts of state taxes foregone, by category.

Tax Category	Amount Foregone
Severance	$ 127,210,000
Income	17,059,000
Corporate Franchise	11,968,000
Sales and Use	10,000,000
Occupational License	100,000
Ad Valorem	9,811,000
Miscellaneous	7,340,000
Total	$ 183,488,000

It can be noted that even without the severance tax, the amount foregone would have been $56,278,000. These amounts are annual, and could be expected at least to remain at these levels and probably to increase. In addition, it should be noted that the sales tax collections included in the total represents only that portion which would be collected for the state. It does not include foregone sales tax collections for individual parishes and municipalities.

The annual amounts of taxes foregone by the state since 1965 for the severance, ad valorem, and miscellaneous tax categories are shown in Table XIII. Where available, the amounts collected from offshore activity within the three-mile limit are shown for purposes of comparison. The much greater level of activity beyond the three-mile limit is reflected in these data.

Like the state, parishes and municipalities from which the companies operate also forego tax revenues because of a lack of jurisdiction. Most of the taxes foregone at the local level are in the sales and ad valorem tax categories. On the assumption that the estimate of state sales tax foregone is reasonable, an estimate can be made of the amounts of parish and municipal sales taxes foregone. The rate of municipal and parish sales taxes ranges from one percent to three percent, and the amount foregone depends upon the distribution of sales by locality for each year. However, if two percent represents a good estimate of the average rate that would be applied, the parish and

Table XIII

SELECTED TAXES COLLECTED FROM OFFSHORE AND FOREGONE FROM OUTER CONTINENTAL SHELF
(1965-1972)

Year	Severance Taxes		Ad Valorem Taxes		Miscellaneous Taxes	
	Collected	Foregone	Collected	Foregone	Collected	Foregone
1965	$ 13,489,160	$ 50,157,750	$ 1,131,875	$ 3,332,561	NA*	$ 4,840,000
1966	15,758,691	63,103,993	1,267,709	3,849,400	NA	5,252,000
1967	18,458,854	74,343,831	1,386,771	4,163,106	NA	5,960,000
1968	21,798,110	90,350,636	1,397,230	4,497,553	NA	6,256,000
1969	23,039,837	105,102,868	1,515,070	5,396,734	NA	6,600,000
1970	25,617,228	123,515,864	1,834,345	8,286,711	NA	6,944,000
1971	25,679,138	131,728,474	1,811,754	9,513,196	NA	7,100,000
1972	30,963,365	127,209,836	1,841,572	9,811,094	NA	7,340,000

*NA = Not available. Most taxpayers do not separate inland and offshore sources of tax in their reports.

Source: State of Louisiana, Department of Revenue, February 1973.

municipal governments are foregoing approximately $6.7 million in sales taxes per year. The ad valorem tax represents an even larger opportunity loss. For every dollar of state ad valorem taxes collected in Louisiana, approximately $7.86 is collected on the local level, according to Bureau of Census data related to governmental finances in 1969-1970. Assuming that this relationship is relatively stable and recalling that the state is foregoing $9,811,000 of ad valorem taxes, the local governments are foregoing $77,100,000. Thus, the total foregone by local governments in Louisiana is $83.8 million.

The total amount of taxes foregone by both the state government and the parish and municipal governments because of a lack of jurisdiction over the outer continental shelf offshore Louisiana is summarized as follows:

State taxes foregone	$183,488,000
Parish and municipal taxes foregone	83,800,000
Total	$267,288,000

Cost of Governmental Services

The cost of governmental services associated with OCS petroleum activity is, in large part, related to the population associated with it. This in turn is dependent upon the number of persons employed in the OCS activity, related major industry employment, supporting employment, and the dependents of all these employees.

As shown in Table XIV, the estimated cost of governmental services arising as a result of OCS activity is $265,044,000. This estimate is based on (1) employment data taken from Appendix B, as discussed previously; (2) 1970 census data, which indicates that there are 2.14 persons for every employed individual; and (3) Bureau of the Census data, which shows that expenditures by state and local governments in Louisiana were $677.88 per capita for fiscal year 1970-1971.[12]

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[12] *Governmental Finances in 1970-71*, U.S. Bureau of the Census, U.S. Government Printing Office, Washington, D. C., p. 45. Approximately 20.4 percent of these funds represents federal government transfers.

Table XIV

COST OF GOVERNMENTAL SERVICES ARISING AS A RESULT OF EMPLOYMENT ASSOCIATED WITH OCS ACTIVITY

Employment Category	Number of Employees Related to OCS Activity	Number of Employees and Dependents	Taxes Needed To Provide Governmental Services		
			Total	To Be Paid By Individuals	To Be Paid By Corporations
Mining	15,000	47,150	$ 31,962,000	$ 12,785,000	$ 19,177,000
Manufacturing	10,500	33,000	22,370,000	8,948,000	13,422,000
Construction	4,700	14,770	10,012,000	4,005,000	6,007,000
Chemicals and Allied Products	7,300	22,940	15,551,000	6,220,000	9,331,000
Refining	2,800	8,800	5,965,000	2,386,000	3,579,000
Supporting Employment	84,100	264,330	179,184,000	71,674,000	107,510,000
Total	124,400	390,990	$265,044,000	$106,018,000	$159,026,000

NOTE: Employment x 3.1431 = Employees + Dependents.
(Employees + Dependents) x $677.88 = Taxes needed to pay for governmental services.

Source: Gulf South Research Institute.

The estimated costs are based on employment and population and thus take into account the interrelationship of employment in basic industries, supporting activities, and mining. They are not intended to be precise measures of the benefits received by groups. They do show that there is a substantial cost generated by the OCS activity.

Some of the cost of governmental services is paid for by individuals and some by corporations. Based on an analysis of tax categories for both the state and local governmental units, it is estimated that approximately 40 percent of total taxes are paid by individuals and 60 percent by corporations. Therefore, as shown in Table XIV, the corporate share of the cost associated with the OCS activity is estimated to be $159,026,000.

Attention is focused on the corporate-borne cost because the OCS activity is beyond the taxing authority of the state and local governments. While the tax burden as a whole is borne by individuals and corporations, a part of one of these groups is incurring and initiating demands for state and local governmental services, but is not participating in the paying of the state and local taxes.

Some of the cost of services that should be paid for by corporations is not being paid. Many of the firms whose activity is dependent in part on OCS activity are paying taxes for their operations which are located on land and within state and local taxing jurisdictions, but do not pay taxes on that portion of business attributed to the OCS.

Of companies which are physically operating in the OCS region, some are paying "taxes" in the form of higher royalty and bonus payments to the federal government because they are not within a state's boundaries, but the state and local governmental units are not receiving their share of this money. It is estimated that the net cost associated with OCS activities is $38,000,000 or approximately 24 percent of the total corporate share. This estimate is based on the following assumptions:

1.	Ninety percent of the cost of governmental services provided mining corporation operating in the OCS are uncompensated for due to the tax jurisdiction	$17,259,300
2.	Fifty percent of the cost of governmental services provided manufacturing firms serving the OCS are uncompensated	6,711,000
3.	Fifty percent of the cost of governmental services provided construction firms serving the OCS are uncompensated	3,003,500
4.	Ten percent of the cost of governmental services provided supporting firms serving the OCS are uncompensated	10,751,000
	TOTAL	$37,724,800

These percentage allocations are based on information contained in the questionnaires and information supplied by the Department of Revenue. It is important to note that these figures apply only to those firms which are engaged in OCS activities and make no allowances for taxes paid for onshore activities by the same firms except those which support OCS activities.

The cost of governmental services that should be paid by corporations and is not being paid to state and local governmental units may be greater than that associated with the estimated 15,000 persons employed in mining. The OCS petroleum mining is relatively capital-intensive when compared with other activities in the state which arise because of it--that is, there is more machinery, plant, and equipment per employee than in other activities. This means that as the mining activity adds employment, relatively more employees will be hired by firms that use less capital per employee.

The demand for such things as ports, highways, airports, and other facilities is probably higher for the capital-intensive. In a survey of offshore operations and support firms, extensive use of Louisiana airports, highways, ports and waterways was reported. These facilities are depicted in figures 12, 13, and 14.

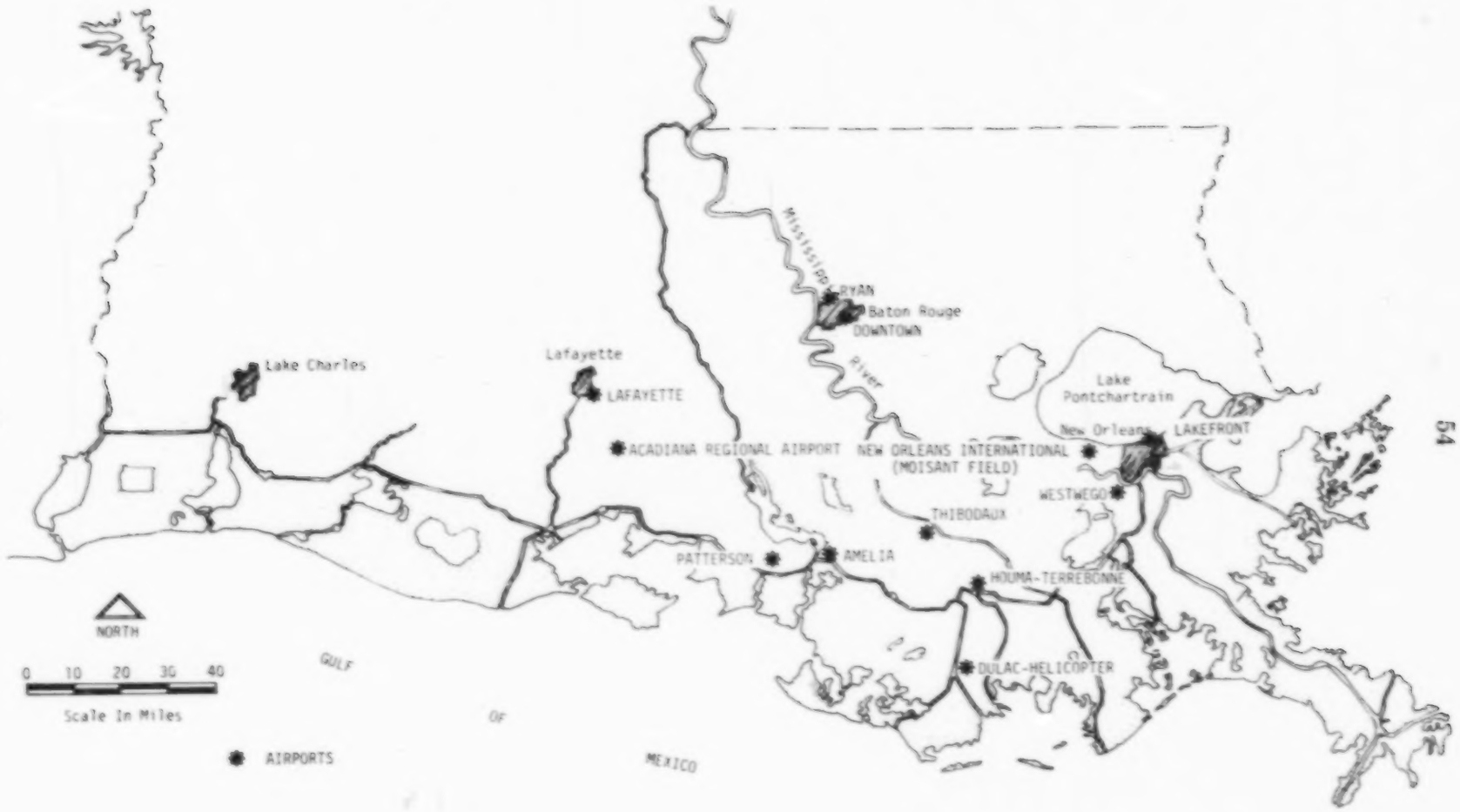

Fig. 12 LOUISIANA AIRPORTS AND HELIPORTS USED BY OFFSHORE OPERATIONS

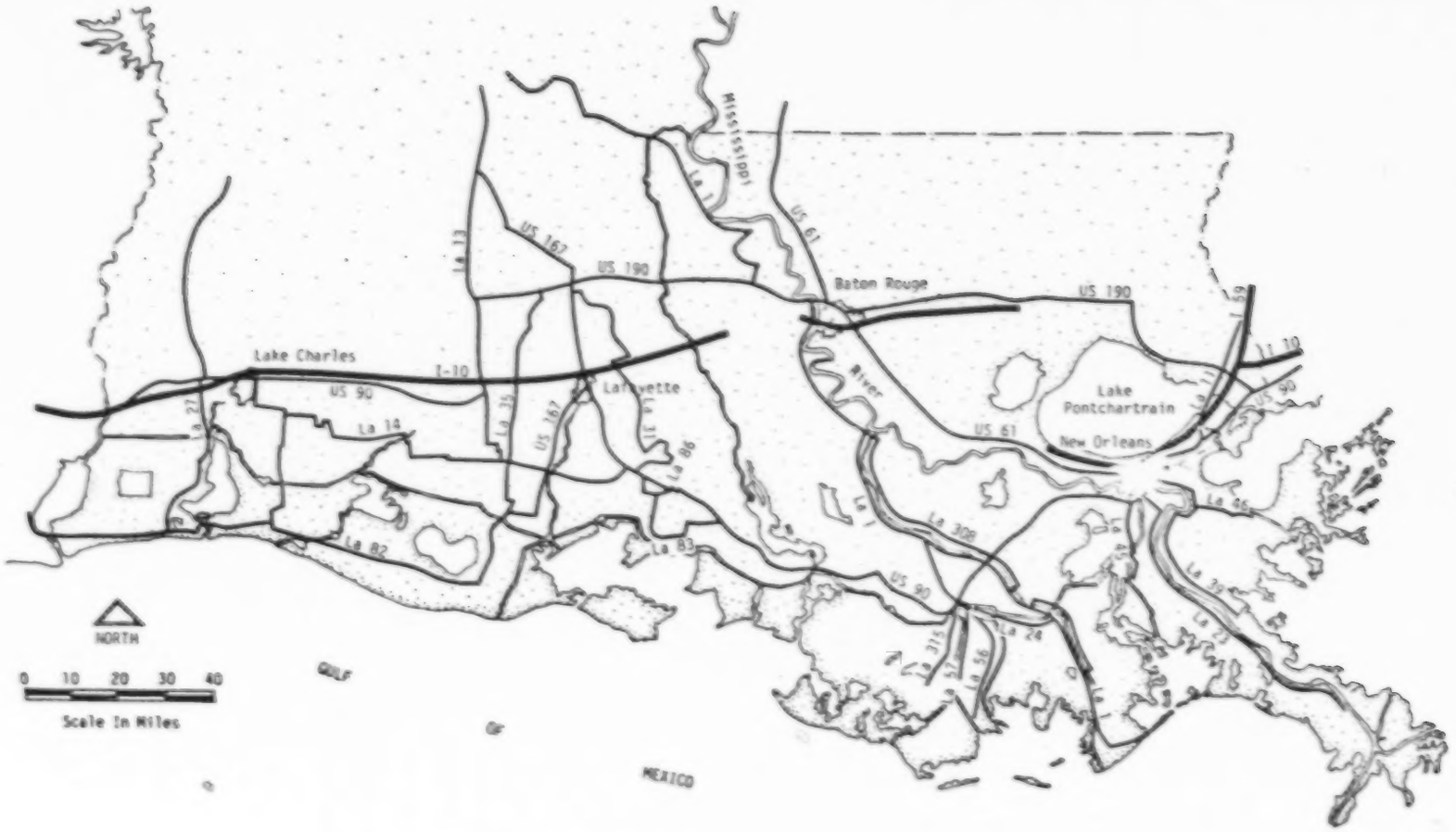

Fig. 13 LOUISIANA HIGHWAYS USED BY OFFSHORE OPERATIONS

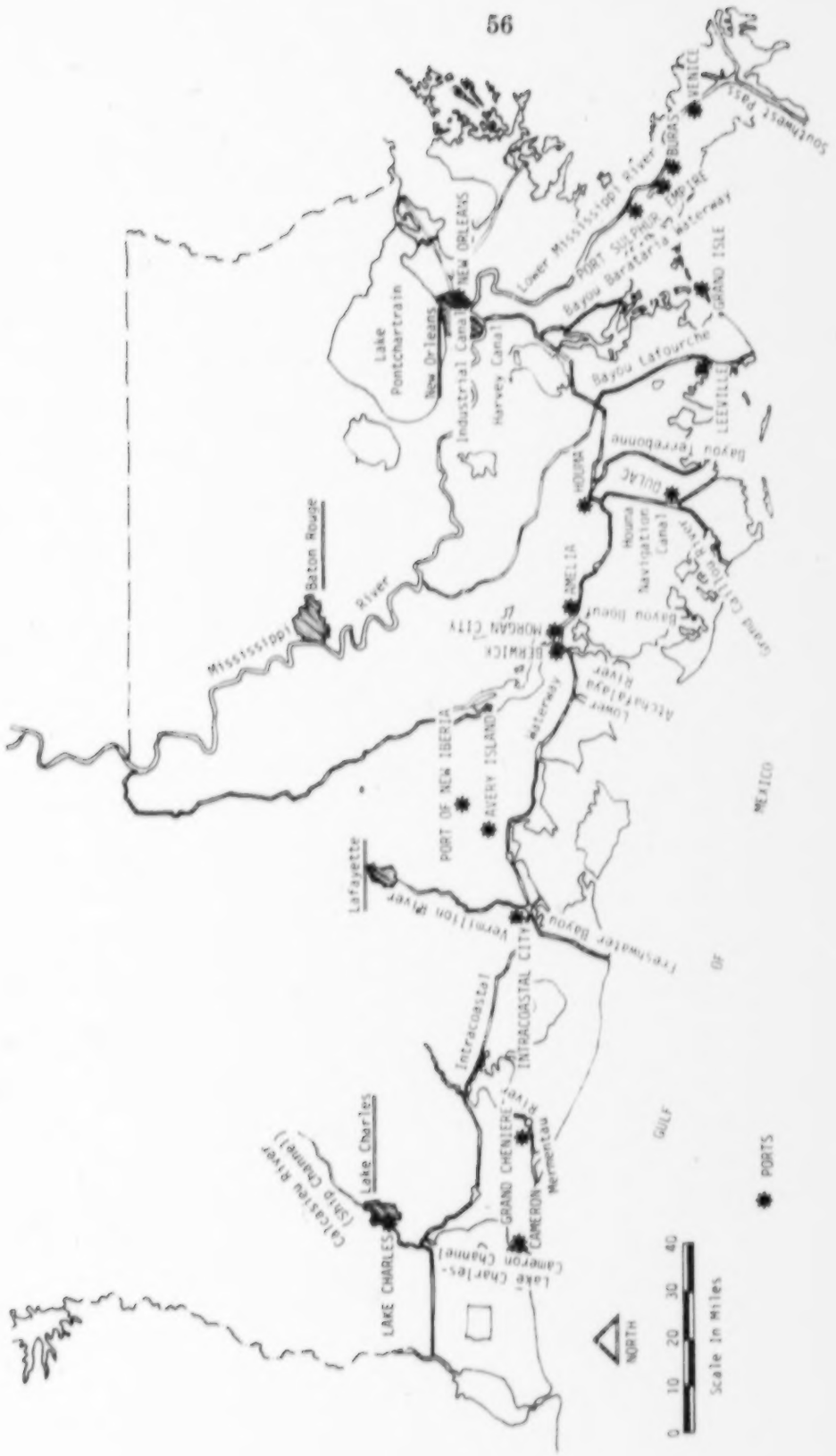

Fig. 14 LOUISIANA PORTS AND WATERWAYS USED BY OFFSHORE OPERATIONS

An important aspect of the cost of providing governmental services in OCS area arises from the location of the demand. In many cases, these services are more expensive to provide in coastal regions than in other areas because of certain unique characteristics. Along the Gulf coast, for example, hurricanes, tropical storms, and tropical depressions are especially damaging between May and October. Many of these bring only brief, gusty winds and locally heavy rainfall. Others, like hurricanes Betsy and Camille, are accompanied with violent winds in excess of 100 miles per hour, massive inundations of shoreline 10 to 15 feet above mean Gulf level, and rainfalls of 10-20 inches in 24 hours. These conditions require expenditures not only for hurricane protection, but also for adequate means of evacuation and for repairs to damaged property and materials. In many instances, highways must be constructed especially for use during flooding conditions. The cost of highway construction is also increased in many cases because the proposed route crosses a marsh region where extensive preparation is required in advance of construction.

In addition to the fact that current offshore operations require shoreline governmental services, there is uncertainty over the future economic base of the area. Much of the expansion of public facilities and services has been based on the rapid growth and needs of the offshore oil and gas operations. However, in 1972 over 38 percent of the offshore area adjacent to Louisiana was already under lease. As to what happens to this area when the oil and gas reserves are depleted, one cannot say. This added uncertainty is a cost to state and local government which cannot be quantified at this time. Nevertheless, the cost must be recognized and steps taken to prevent an Appalachia from developing in the coastal zone.

Implications for Other Coastal States

The development of petroleum resources from the OCS region offshore any coastal state generates demand for governmental facilities and services. The magnitude and timing of this demand depend upon the rate of exploration, the success in finding reserves, the productivity of the wells, and the rate of development of reserves.

Other factors influence the induced impact of such development upon a region. These include, among others, the willingness of states and localities to construct and operate refineries and petrochemical plants. One way of estimating the possible impact of the demand for governmental services is to relate the projected additions in petroleum reserves to employment. The following analysis focuses on the possible magnitude of the cost of governmental services stemming from development of resources offshore the United States in the Pacific Ocean, the Atlantic Ocean, and the Gulf of Mexico.

The Committee on the U.S. Energy Outlook of the National Petroleum Council recently published estimates of petroleum potential for various regions of the United States. These estimates of remaining discoverable resources were presented previously in tables II and III. The committee also forecast additions to reserves under varying assumptions with respect to drilling rates and finding rates. The estimates for regions offshore the lower 48 states are shown in tables XV and XVI for two of the assumptions.

Table XV

PROJECTED REGIONAL NON-ASSOCIATED GAS RESERVES
ADDED DURING THE PERIOD 1971-1985
(Cumulative in Thousands of Cubic Feet)

Region	High Finding Rate and Medium Drilling Rate	Low Finding Rate and Medium Drilling Rate
Atlantic Ocean	11.4	7.6
Pacific Ocean	0.3	0.3
Gulf of Mexico	95.6	63.3

Source: *U.S. Energy Outlook: A Report of the National Petroleum Council's Committee on U.S. Energy Outlook*, December 1972, p. 103.

Table XVI

PROJECTED REGIONAL CRUDE OIL RESERVE ADDITIONS
DURING THE PERIOD 1971-1985
(In Billions of Barrels)

Region	High Finding Rate and Medium Drilling Rate	Low Finding Rate and Medium Drilling Rate
Atlantic Ocean	0.5	0.4
Pacific Ocean	4.2	3.1
Gulf of Mexico	6.4	4.6

Source: *U.S. Energy Outlook: A Report of the National Petroleum Council's Committee on U.S. Energy Outlook*, December 1972, p. 84.

The estimates shown in tables XV and XVI were used in conjunction with historical relationships for Louisiana to obtain estimates of the magnitude of governmental costs. For the period 1956-1970, the additions to reserves for natural gas and oil for the Gulf of Mexico were 42.1 thousands of cubic feet and 5.0 billion barrels, respectively. Based on the earlier estimate of 15,000 persons being employed in the OCS offshore Louisiana and the fact that about 85 percent of offshore production comes from federal areas, it is estimated that approximately 17,650 are engaged in all offshore activity. This number was used as the employment level necessary to develop the additions to reserves in the Gulf of Mexico for the 1956-1970 period. This number may be low because in recent years approximately 10 percent of the oil produced from the OCS came from offshore Texas. The 17,650 employees were then allocated to oil and gas on the basis of the number of producing wells of each type--25 percent gas and 75 percent oil.

The estimates of the mining employment needed to develop the additions to reserves for the various areas were then developed, using the following relationship:

$$\frac{\text{Allocated Louisiana Mining Employment}}{\text{Additions to Reserves for the Period 1956-1970}} = \frac{\text{Estimated Regional Mining Employment}}{\text{Estimated Additions to Reserves}}$$

To estimate the additional employment in other activites such as manufacturing, construction, refining, and chemicals and allied products, the relationship that currently holds for Louisiana was used. There are 1.687 persons employed in these categories for each mining employee. In addition, supporting employment was estimated in the same way it was earlier in the report for Louisiana--for every employee in the basic industries discussed above, it was assumed that there were approximately 2.087 persons in supporting employment opportunities.

The estimates for employment by region under both the assumption of high finding and low finding rates coupled with a medium drilling rate, are shown in Table XVII.

Table XVII

ESTIMATED REGIONAL EMPLOYMENT ASSOCIATED WITH THE DEVELOPMENT OF OFFSHORE OIL AND GAS

Region	Mining Employment	Other Basic Industry Employment	Supporting Activity Employment	Total Employment
Assumption I: High Finding Rate and Medium Drilling Rate				
Atlantic Ocean	2,52[illegible]	4,250	14,130	20,900
Pacific Ocean	11,150	18,810	62,520	92,480
Gulf of Mexico	26,960	45,490	151,190	223,640
Assumption II: Low Finding Rate and Medium Drilling Rate				
Atlantic Ocean	1,860	3,130	10,410	15,400
Pacific Ocean	8,240	13,900	46,200	68,340
Gulf of Mexico	18,810	31,730	105,470	156,010

The cost of governmental services was estimated using the current relationships between employment and population for Louisiana and the current cost per capita for governmental services. The total population is 3.1431 times as large as total employment, and governmental expenditures were $677.88 per capita, as shown in Table XVIII.

Table XVIII

IMPACT ON DEMAND FOR GOVERNMENTAL SERVICES ASSOCIATED WITH DEVELOPMENT OF REGIONAL OFFSHORE PETROLEUM

Region	Employment	Population	Annual Cost of Governmental Services
Assumption I: High Finding Rate and Medium Drilling Rate			
Atlantic Ocean	20,900	65,690	$ 44,529,900
Pacific Ocean	92,480	290,670	197,039,400
Gulf of Mexico	223,640	702,920	476,495,400
Assumption II: Low Finding Rate and Medium Drilling Rate			
Atlantic Ocean	15,400	48,400	$ 32,809,400
Pacific Ocean	68,340	214,800	145,608,600
Gulf of Mexico	156,010	490,360	332,405,000

These estimates of costs for governmental services are only rough indications of the potential magnitude of such costs. In reality, many factors enter the situation. The cost of governmental service will vary from region to region and probably can be expected to rise for all regions. The employment relationships currently applicable in the Louisiana situation may not hold for other areas now or in the future. Moreover, the productivity of the petroleum fields themselves can be expected to vary from region to region.

In view of all these factors, it is useful to consider the magnitude of the potential costs and to consider the direction of potential errors in these estimates. Two factors may suggest that the costs can be even higher than that estimated. These factors are (1) that the Louisiana offshore fields have been very productive and other regions may experience less productivity; and (2) the costs of governmental services have steadily risen for all regions in the country.

The estimates previously discussed deal with all of the offshore areas because estimates of additions to reserves are not broken down into state and federal areas. The proportion of development taking place in federal areas and state areas will vary from region to region.

MINERAL LEASING ON FEDERAL AND OFFSHORE AREAS

Onshore Lands

The Mineral Leasing Act of February 25, 1920 (41 Stat. 436, 30 U.S.C. 181 seq.) provides for the sharing of mineral leasing revenues from federal lands with the state within which the federal lands are located.

> . . . 37-1/2 per centum of the amounts derived from such bonuses, royalties, and rentals shall be paid by the Secretary of the Treasury after the expiration of each fiscal year to the State within the boundaries of which the leased lands or deposits are or were located, said monies to be used by such State or subdivisions thereof for the construction and maintenance of public roads or for the support of public schools or other public educational institutions, as the legislature of the State may direct . . .

The apparent intent of the rebate provision of the Mineral Leasing Act of 1920 was it . . . "gives the States a certain portion of the revenues to partly reimburse them for their losses in taxes."[13] Today each state receives 37.5 percent of the bonuses, royalties and rentals collected by the federal government except Alaska which receives 90 percent of mineral leasing revenues. The distribution of funds under the Mineral Leasing Act of 1920 is presented in Table XIX.

Offshore Water Bottoms

The following paragraphs contain a brief summary of the historical legal status of offshore lands and the current practices now in effect in regard to the leasing of such lands.

Legal Status

The controversy over ownership of coastal submerged lands began in the 1920s.[14] California was the first state to issue oil and gas lease

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[13] Mr. Mondel, *Congressional Record* (October 28, 1919), p. 7649.

[14] This description of legal status is drawn from L. K. Weaver, C. J. Jirik, and H. T. Pierce, *Impact of Petroleum Development in the Gulf of Mexico* (Washington: U.S. Department of the Interior, Bureau of Mines), 1969, pp. 10-14.

Table XIX

RECEIPTS UNDER THE MINERAL LEASING ACT, FEBRUARY 25, 1920 - JUNE 30, 1972

State	Fiscal Year				Total
	1920-1969	1970	1971	1972	
Alabama	$ 355,625	$ 15,729	$ 40,676	$ 28,384	$ 440,414
Alaska	88,137,436	9,207,850	8,910,283	8,144,514	114,400,103
Arizona	6,611,169	347,808	335,750	496,926	7,791,653
Arkansas	1,444,174	55,435	51,757	44,121	1,595,487
California	224,856,230	7,542,059	8,261,400	7,028,435	247,688,124
Colorado	184,213,230	8,236,750	7,888,341	9,392,007	209,730,328
Florida	15,377	79,579	90,973	5,377	191,306
Idaho	8,691,083	558,042	419,783	587,683	10,256,591
Illinois	222	--	--	--	222
Indiana	240	--	--	--	240
Kansas	5,195,543	479,787	436,381	463,415	6,575,126
Louisiana	8,565,927	753,754	865,603	711,594	10,896,878
Michigan	172,121	43,229	45,028	44,307	304,685
Mississippi	320,263	42,614	32,150	26,415	421,442
Montana	93,414,992	7,508,049	6,823,400	6,685,006	114,431,447
Nebraska	301,330	6,620	4,435	4,615	317,000
Nevada	16,410,332	1,152,170	969,208	720,636	19,252,346
New Mexico	347,831,566	29,989,734	31,502,346	31,049,508	440,373,154
North Dakota	7,407,404	534,198	538,628	576,882	9,057,112
Oklahoma	3,401,720	528,580	410,649	578,929	4,919,878
Oregon	869,176	73,685	183,542	178,552	1,304,955
South Dakota	4,821,700	468,202	283,463	227,310	5,800,675
Utah	136,028,278	8,597,546	9,238,512	9,970,842	163,805,178
Washington	221,325	281	15,008	522	237,136
Wyoming	710,663,071	50,889,708	57,523,768	52,858,026	872,334,573
TOTAL	$1,849,949,554	$127,111,409	$135,241,084	$129,824,006	$2,242,126,053

NOTE: Act of February 25, 1920 (41 Stat. 437, 30 U.S.C. 181 et seq.). These figures are not adjusted for refunds and other corrections.

Source: U.S. Department of Interior, Bureau of Land Management, 1973.

rights for submerged land. With the development of offshore activity in California, the U.S. Department of the Interior began receiving applications for oil leases under the Mineral Leasing Act of 1920. During the ensuing years, attempts were made in Congress to pass legislation defining the state and federal role in the development of submerged lands. The issue remained unsettled during World War II. In September 1945, however, President Franklin D. Roosevelt issued Proclamation No. 2667 stating the federal government's jurisdiction over the seabed of the continental shelf. At the same time, he issued Executive Order No. 9633, placing the natural resources of the continental shelf under the jurisdiction of the Department of the Interior. This was followed by the landmark California Case (332 U.S. 19) in which the U.S. Supreme Court ruled that the rights of the state ended at the water's edge and that the federal government had "paramount rights" to the submerged lands adjacent to its coast.

The decision of the U.S. Supreme Court aroused a great deal of opposition. A bill was introduced and passed in Congress to reverse the court's decision. The bill, however, was vetoed by President Harry S. Truman.

On June 5, 1950, the U.S. Supreme Court ruled against the claims of Texas and Louisiana to the submerged waterbottoms (339 U.S. 707 and 339 U.S. 699). During the presidential campaign of 1952, General Dwight D. Eisenhower indicated that, if elected, he would support legislation establishing the state's rights to submerged land. Subsequently, the Submerged Lands Act was signed into law on May 22, 1953. The act established the seaward boundary of the states at three geographic miles from the coastline, unless another historic boundary could be proved. In the litigation that followed, the constitutionality of the Submerged Lands Act was upheld by the Supreme Court. The Court held that the division of the continental shelf between the federal and state governments was a domestic matter and was therefore governed by Congress, which passed the act. In 1955, the federal government initiated action against Louisiana to establish its rights to the water bottoms beyond three geographic miles and to establish an accounting for money derived from the disputed area.[15]

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[15] For a discussion of the delineation of zones 1, 2, 3, and 4, see *Ibid.*, pp. 11-14.

In 1960, the Supreme Court upheld the right of Texas and Florida to submerged lands extending three leagues (or 10.5 nautical miles) into the Gulf of Mexico. The same decree ruled that Louisiana, Mississippi, and Alabama are entitled to the submerged lands extending not more than three geographic miles from their coastlines. At this time Alaska, the Atlantic coast states, and Louisiana are still engaged in tidelands disputes with the federal government.

Leasing Practices

The Outer Continental Shelf Lands Act, enacted on August 7, 1953, gives the Department of the Interior administrative authority over leasing of mineral rights in the outer continental shelf area. Within the Department of the Interior, the Bureau of Land Management (BLM) administers the OCS leasing provisions, and the U.S. Geological Survey (USGS) administers the OCS operating regulations.

Lease sales are scheduled at the Secretary of Interior's discretion. Normally, two lease sales are scheduled each fiscal year. The President's Energy Message in April 1973, however, called for more frequent and larger lease sales on the outer continental shelf. Both the USGS and BLM advise the Secretary in planning and evaluating lease activities. Usually when interest is expressed in a certain area, a call for nominations in a specified area is made. Specific tracts to be offered for lease are selected on the basis of a combination of geological, engineering, economic and environmental data. Once the tracts are selected, a notice of lands for lease is published in the *Federal Register*. The notice defines the terms and conditions of lease.

To date, leases have been received on the basis of a cash bonus and fixed royalty. The first year rental or minimum royalty is prescribed in notice. Royalties for OCS oil and gas have been 16-2/3 percent and, by law, cannot be less than 12.5 percent. Leases are made for five years and are maintained in force as long as production justifies the lease. The bid for a tract must be accompanied with a certified check or cashiers check, bank draft, money order, or cash equal to one-fifth the value of the bid. The remaining four-fifths of the bonus bid, plus the first year rental, is due within 30 days of the lease award. A summary of first year rentals and bonuses by contiguous states is presented in Table XX.

Table XX

SUMMARY OF OUTER CONTINENTAL SHELF LEASE SALES, BY STATE, BY PRODUCT
(1954-1972)

Lease Sales		Number of Leases	Acreage	Bonus	First Year Rental
By State	By Product				
California		124	678,121	$ 636,715,849	$ 2,038,361
Florida		23	132,480	1,711,872	39/,440
Louisiana		1,321	5,588,918	5,352,891,396	19,352,116
Oregon		74	425,433	27,768,772	1,276,302
Texas		264	1,099,493	695,723,597	3,298,485
Washington		27	155,420	7,764,928	466,260
Total		1,833	8,079,865	$6,763,764,414	$26,828,964
	Oil and Gas	1,772	7,972,245	6,727,969,641	26,531,104
	Salt	2	4,995	105,814	14,985
	Sulfur	59	102,625	35,688,959	282,875
	Total	1,833	8,079,865	$6,763,764,414	$26,828,964

Source: U.S. Department of the Interior, Bureau of Land Management.

The USGS administers the rules and regulations applicable to operations conducted under a lease issued by the Department of the Interior, including the regulation of drilling and production, collection of rental and royalty, well and other structure abandonment, etc. A summary of royalty payments made from 1954 to 1972 by contiguous states is presented in Table XXI.

Table XXI

SUMMARY OF OUTER CONTINENTAL SHELF ROYALTIES FOR ALL PRODUCTS, BY ADJACENT STATE
(1954-1972)

Year	State						Total
	California	Florida	Louisiana	Oregon	Texas	Washington	
1954	--	--	2,748,977	--	--	--	2,748,977
1955	--	--	5,139,027	--	979	--	5,140,006
1956	--	--	7,622,708	--	6,675	--	7,629,383
1957	--	-	11,387,865	--	3,380	--	11,391,245
1958	--	--	17,423,878	--	--	--	17,423,878
1959	--	--	26,539,836	--	141	--	26,539,977
1960	--	--	37,095,254	--	47	--	37,095,301
1961	--	--	47,920,332	--	--	--	47,920,332
1962	--	--	66,094,497	--	1,837	--	66,096,334
1963	--	--	76,972,598	--	26,627	--	76,999,225
1964	--	--	88,397,781	--	2,449	--	88,400,230
1965	--	--	102,860,874	--	1,666	--	102,862,540
1966	--	--	135,390,922	--	1,596,615	--	136,987,537
1967	--	--	153,271,258	--	4,336,351	--	157,607,609
1968	906,430	--	195,353,524	--	4,676,977	--	201,136,931
1969	4,891,885	--	230,198,962	--	4,999,819	--	240,090,666
1970	12,599,910	--	265,953,798	--	4,940,860	--	283,494,568
1971	17,115,304	--	328,279,048	--	4,648,136	--	350,042,488
1972	--	--	--	--	--	--	--
Total	35,513,529	--	1,798,851,139	--	25,242,559	--	1,859,607,227

Source: Gulf South Research Institute.

Appendix A

NUMBER OF PERMITS GRANTED FOR GEOLOGICAL AND/OR GEOPHYSICAL EXPLORATION

Appendix A

Outer Continental Shelf

NUMBER OF PERMITS GRANTED FOR GEOLOGICAL AND/OR GEOPHYSICAL EXPLORATION

Year	Alaska	Atlantic	Gulf Coast					Pacific	Yearly Total
			Alabama	Florida	Louisiana	Mississippi	Texas		
1963	9	1	2	1	141	1	18	8	181
1964	5	6	2	7	110	1	93	14	238
1965	12	2	3	7	155	1	140	21	341
1966	11	10	11	30	360	6	136	27	591
1967	1	5	7	26	301	3	138	34	55
1968	27	9	13	26	168	12	95	28	38
1969	30	7	10	10	160	9	61	16	30
1970	40	4	4	13	134	1	48	3	253
1971	27	4	7	19	150	3	18	6	234
TOTAL	178	46	59	139	1,701	41	759	177	3,164

Source: "Questions and Policy Issues Related to Oversight Hearings on the Administration of the Outer Continental Shelf Lands Act to be Held by the Senate Committee on Interior and Insular Affairs, Pursuant to S. Res. 45, March 23, 1972," U.S. Department of the Interior, 1972.

Appendix B

EMPLOYMENT AND GOVERNMENTAL EXPENDITURES ASSOCIATED WITH OCS PETROLEUM PRODUCTION

Appendix B

EMPLOYMENT AND GOVERNMENTAL EXPENDITURES ASSOCIATED WITH OCS PETROLEUM PRODUCTION

Employment in a basic industry such as mining can be expected to induce employment in related and supporting activities. The methodology for arriving at the estimates of the number of persons employed in mining related to OCS activity and in induced activities is discussed in this section. Employment data is summarized in the following tabulation:

Employment Category	Estimate of Number Employed as a Result of OCS Activity		
Mining	15,000		
Manufacturing	10,500		
Construction	4,700		
Chemicals and allied products	7,300		
Refining	2,800		
Subtotal		40,000	
Supporting employment	84,100		
Subtotal		84,100	
TOTAL			124,400

Mining

It is estimated that 15,000 persons employed in the mining category in Louisiana are associated with outer continential shelf activity. This estimate is based on information from a mail questionnaire, telephone conversations with a number of people associated with the industry, and an analysis of employment data.

Discussions of the problem with persons in the industry indicate that even those intimately concerned with OCS activity have difficulty in determining how many people are engaged in activity associated with the OCS. Part of the problem is separating an individual's time into the part spent on on-shore problems and the part spent on offshore problems. Perhaps as many as 75 percent of the 50,000 persons employed in the mining category spend some time on offshore-related problems. It may be that as many as 50 percent of the people now employed in mining would not be so employed if there were no OCS activity.

Analysis of data from questionnaires returned by large firms (which were verified by telephone calls) resulted in a conservative estimate that 30 percent of the employees in mining are associated with OCS activities.

The number of persons reported on the questionnaires as being engaged in activity related to the OCS was related to the number of persons employed in SIC codes 131, 132, 138, according to Louisiana Employment Security data for 38 southern parishes. The results are shown in Table B-1.

The number of persons associated with OCS activity can also be estimated by relating the percentage of production taking place from the OCS of total Louisiana production to employment. In 1970, 29.3 percent of the oil and 28.9 percent of the gas came from the federal OCS areas. By rounding both figures to 29 percent and multiplying total state mining employment by that figure, the following number is obtained:

49,685 x .29 = 14,409

Table B-1

RELATIONSHIP OF OCS MINING EMPLOYMENT OF TOTAL MINING EMPLOYMENT

Company	Employment in SIC Codes 131, 132, 138*	OCS Employment Reported on Questionnaire	OCS Mining Employment, as Percent of Total
A	1,020	225	.22
B	1,960	493	.25
L	959	311	.32
D	184	75	.41
E	279	250	.90

*For 38 southern parishes in Louisiana.

This is an estimate of only the federal OCS-related employment. Additional employment would be associated with state offshore activity. In 1970, state offshore oil and gas production was 6.8 percent and 7.7 percent of the state total, respectively. If seven percent is used as a conservative approximation of the two, employment for this activity can be estimated as

49,685 x .07 = 3,478

The total for the federal OCS and the state offshore areas, therefore, would be 17,887 persons.

Employment can alternatively be estimated by using the number of producing oil and gas wells as a means of allocating total employment. The following relationships are then found:

Oil Wells

Total number of wells, 1970 = 28,278

Land 23,493 ÷ total = .83

State offshore 1,171 ÷ total = .04

Federal OCS 3,614 ÷ total = .13

Gas Wells

Total number of wells, 1970 = 10,333

Land 8,708 ÷ total = .84

State offshore 322 ÷ total = .03

Federal OCS 1,303 ÷ total = .13

Related to Employment

49,685 x .13 = 6,459
" x .03 = 1,490 } 7,949
" x .84 = 41,735

The last estimate does not seem realistic, according to people involved in the industry.

One of the major problems associated with estimating the total number of people related to OCS activity is the manner in which governmental sources classify employment. For example, one firm indicated on the questionnaire that approximately 455 of its employees with Louisiana residences are associated with OCS production. These individuals, however, were not counted in the mining category in Employment Security data.

Construction

The number of persons in Louisiana employed in construction related to OCS petroleum production is estimated to be 4,700, on the basis of 1970 census data and the methodology described below.

The four employment categories of agriculture, forestry and fisheries; mining; construction; and manufacturing were assumed to be the basic industrial employment base. It was assumed that if there were no employment in any of these four categories, there would be no other employment. The employment in the major category of construction was then allocated to the other three in relation to their relative importance. In the case of mining, the percentage of construction employment allocated was determined by dividing 46,584 (the 1970 employment in mining) by the total employment in agriculture, forestry,

and fisheries; mining; and manufacturing (278,607).
The resulting percentage was multiplied by employment in construction (96,600). The number obtained is the total associated with mining, and since 29 percent of the total production is obtained from the OCS, that percentage was used to obtain the final estimate of approximately 4,700.

Construction Calculation

Total construction employment	96,609
Agriculture, forestry, and fisheries	47,999
Mining	46,584
Manufacturing	184,024
	278,607

$(\frac{46,584}{278,607})$ (96,609) (.29) = 4,684

Manufacturing

It is estimated that approximately 10,500 persons employed in manufacturing are associated with, or dependent upon, OCS activity. This number excludes those in the subcategories of refining and chemicals and allied products. The methodology employed in obtaining this estimate was the same as that used for construction, with the exception that all of the employment in chemicals and allied products and 9,500 persons from the other nondurable goods category to account for refining employment were excluded and treated separately.

Manufacturing Calculation

Total Employment in Manufacturing		184,024
Less:		
Chemicals and Allied Products	25,223	
Refining	9,500	
		34,723
		149,301
Agriculture, Forestry, and Fisheries		47,999
Mining		465,584
Construction		96,609
		191,192

$(\frac{46,584}{191,192})$ (149,301) (.29) = 10,549

Chemicals and Allied Products

Based on the ratio of OCS production to total petroleum production, it is estimated that approximately 7,300 employees in the chemicals and allied products category are dependent upon OCS activity. Since petroleum activity is so directly related to the manufacture of chemicals and allied products, it seems appropriate to relate the employment to production in this manner.

Chemicals and Allied Products Calculation

25,223 x .29 = 7,315

Refining

The number of employees in refining who are dependent upon OCS production is estimated to be approximately 2,800. This estimate was determined in the same way as that for chemicals and allied products.

Refining Calculation

9,500 x .29 = 2,755

Agriculture, Forestry, and Fisheries

None of the employment in the category of agriculture, forestry, and fisheries was related to the OCS petroleum production.

Supporting Employment

For every employee in one of the four major categories, it is estimated that there are 2.0868752 persons employed, on the average, in other categories. This figure was obtained using 1970 census data which indicated that employment in the four categories totaled 375,216, while all other employment totaled 783,029. The number of persons employed in supporting activities is estimated to be 84,100.

APPENDIX II

IMPACT COSTS TO THE STATE OF LOUISIANA AND POLITICAL SUBDIVISIONS RESULTING FROM FEDERAL OFFSHORE PRODUCTION, A PRELIMINARY STUDY

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Part I. General Background

A. Introduction

This study was prepared in a three-week period extending from June 13 through June 30, 1972. Due to time constraints, this study must be considered a preliminary one, but the data which is presented is, to the best of our knowledge, accurate and unbiased, and the methodology is correct for its purpose. Because the methodology employed, particularly in Part III, is one of inclusion rather than exclusion, most if not all errors or oversights will be those of omission. This is important because the costs to Louisiana and its subdivisions will tend to be understated as a result. In addition, no allocations were made of general state or department administrative overhead. No expenditures by the Department of Public Welfare were included because it is assumed that federal offshore activity decreases such current expenditures.*

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*When offshore production decreases in the future, the individuals who become unemployed will produce an added welfare burden for the state. While an argument could be made to include a present value estimate of such costs, the authors decided to exclude it because of its indefiniteness.

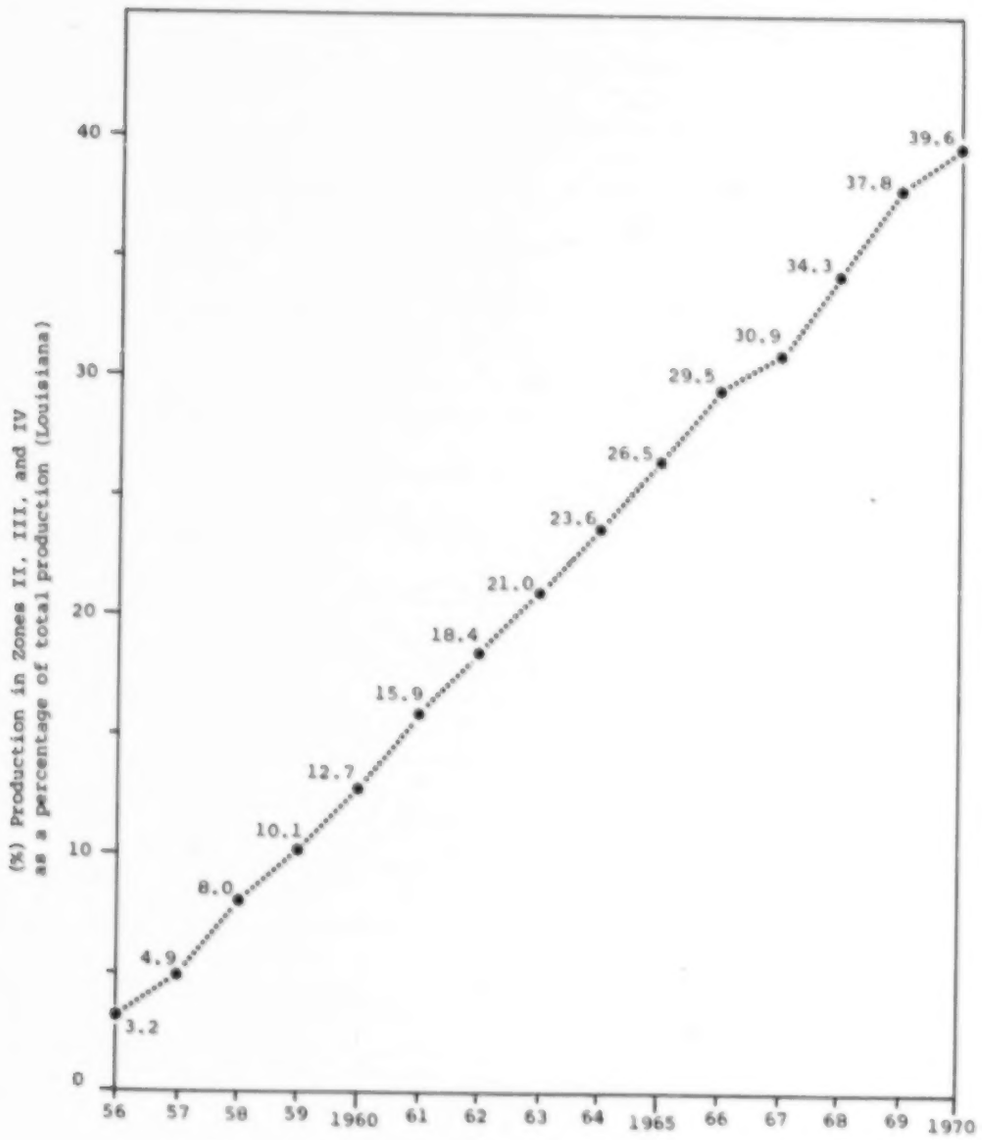
After conducting a brief search of the appropriate literature and discussing the project with state and federal officials it is believed that this is the first study of its kind undertaken. Because of the uniqueness of the study, criticism is expected from those who believe that certain costs were included which should have been omitted. The authors have little doubt, however, that most of the criticism will be levied by those who believe that too many cost factors were excluded or underestimated. Given more favorable time constraints some, but not all, of these criticisms might have been eliminated.

The study is divided into four parts. Part I contains a general and rather incomplete overview of Louisiana's tax revenue pattern and its relationship to the federal offshore activity. A brief but very interesting study of Louisiana's relative position among Mineral Leasing Act states is contained in Part II. Part III is the itemized allocation of costs to the state and its political subdivisions resulting from offshore production in the federal area and Part IV is a brief summary of the entire report.

B. State Revenues and Offshore Production

Total Louisiana production of crude petroleum increased slightly, in absolute terms, throughout the 1960's. Production of crude on federal lands adjacent to Louisiana, however, increased at a much more rapid rate. Figure 1 shows the crude production in Zones 2, 3 and 4 as a percentage of total onshore and offshore production in and adjacent to Louisiana. It is quite evident that production in the federal (and contested) areas is becoming increasingly greater relative to production on state lands. In 1956, only 3.2 percent of total production was on federal lands, whereas in 1970, more that 39 percent occured on federal lands.

CRUDE PRODUCTION IN LOUISIANA"S ZONES II, III, AND IV
AS A PERCENTAGE OF TOTAL CRUDE PRODUCTION ONSHORE AND OFFSHORE



Source: Louisiana Department of Conservation
Percentage computed by authors.

Figure 1

This shift in production from state to federal lands has had an impact on the revenue structure of the State of Louisiana. Figure 2 shows Louisiana's receipts from severance taxes as a percent of total state tax revenues. The relative importance of severance tax revenues increased sharply in the latter fifties but has been decreasing since the latter sixties and is expected to decrease even more in 1971-72 fiscal year.

Figure 3 presents Louisiana's revenue obtained from mineral leases, rentals, bonuses and royalities as a percentage of total revenue receipts. Again these receipts, as percentages of total receipts, have been decreasing since the latter fifties and the trend can be expected to continue, if not to accelerate, in the 1970's.

Louisiana's decreasing revenues from mineral receipts prompted a study of Louisiana's receipts obtained from the federal government relative to Louisiana's payments to the federal government. Table 1 presents the revenues received by the federal government's collecting and dispersing agency, the Bureau of Land Management (BLM) from 1960 to 1971. Column 3 shows total BLM receipts from Outer Continental Shelf and onshore leases and permits. Column 4 lists the total allocations to states under the Minderal Leasing Act of 1920 which requires the federal government to return to the states 37½ percent of the revenues it obtains from federal lands located within the state boundaries of the respective states.* Column 7 shows the total BLM receipts from Louisiana state lands and from the Outer Continental Shelf adjacent to Louisiana. Allocations to Louisiana from the BLM are detailed in Column 8. The most interesting columns are 9 and 10. The federal government's revenues received from Louisiana, including OCS adjacent to Louisiana are shown in column 9 as a percentage of

*See discussion on page 9 for further details.

TABLE 1
SOURCES AND ALLOCATIONS OF
BUREAU OF LAND MANAGEMENT (BLM) REVENUES
FISCAL YEARS 1960-1971*

	TOTAL FEDERAL BUREAU OF LAND MANAGEMENT'S RECEIPTS FROM OCS-MINERAL LEASES AND PERMITS	TOTAL FEDERAL BLM RECEIPTS FROM STATE LANDS MINERAL LEASES AND PERMITS	FEDERAL ELM TOTAL RECEIPTS FROM MINERAL LEASES AND PERMITS [(1) + (2)]	TOTAL FEDERAL BLM ALLOCATIONS TO STATES FROM MINERAL LEASES AND PERMITS	BLM RECEIPTS FROM MINERAL LEASES AND PERMITS ON PORTION OF OCS BORDERING LOUISIANA	BLM RECEIPTS FROM LOUISIANA (STATE AND OCS) [(5) + (6)]	ALLOCATION OF BLM RECEIPTS TO LOUISIANA FROM MINERAL LEASES AND PERMITS	BLM MINERAL LEASES AND PERMIT RECEIPTS FROM LOUISIANA (OCS AND STATE) AS A PERCENTAGE OF TOTAL BLM RECEIPTS FROM MINERAL LEASES AND PERMITS [(7)÷(3)] x 100	BLM ALLOCATIONS TO LOUISIANA FROM MINERAL LEASES AND PERMITS AS A PERCENTAGE OF TOTAL BLM ALLOCATIONS TO ALL STATES FROM MINERAL LEASES AND PERMITS [(8)÷(4)]x100
	[1]	[2]	[3]	[4]	[5]	[7]	[8]	[9]	[10]
1960	$ 229,456,819	$ 94,561,469	$ 324,018,288	$34,722,100	$ 200,050,703	$ 202,968,074	$ 96,664	62.64%	0.28%
1961	7,304,687	109,677,284	116,981,971	36,736,948	6,609,078	20,956,047	139,197	17.91	0.38
1962	11,612,151	117,062,197	128,674,348	45,444,823	10,843,647	14,531,496	116,800	11.29	0.26
1963	366,814,147	118,562,815	485,377,262	45,408,020	352,103,463	357,947,876	114,909	73.75	0.25
1964	16,491,410	122,245,697	138,737,107	47,492,773	15,136,655	20,904,289	190,348	15.07	0.40
1965	53,469,903	123,272,268	176,742,171	46,553,750	15,050,342	19,025,927	241,716	10.76	0.52
1966	248,317,216	125,299,351	373,616,567	47,668,760	219,473,127	224,895,413	174,683	60.19	0.37
1967	637,310,722	124,936,223	762,246,945	47,928,203	611,637,205	615,743,886	199,871	80.78	0.42
1968	961,266,059	128,555,825	1,089,821,884	49,080,378	57,367,755	61,485,612	235,903	5.64	0.48
1969	428,278,500	138,538,529	566,817,029	52,787,886	129,990,167	135,309,131	797,354	23.87	1.51
1970	186,861,451	141,217,162	328,078,613	53,955,108	171,246,645	174,672,475	282,658	53.24	0.52
1971	1,050,549,370	151,332,134	1,201,881,504	57,034,998	1,025,618,137	1,029,636,148	324,601	85.67	0.57

Source: U.S. Department of the Interior, Bureau of Land Management, Public Land Statistics, Annual Reports.

*The data on receipts and allocations were taken from Bureau of Land Management statistics. An attempt was made to reconcile this data, presented on a fiscal basis, with data from the Conservation Division, Geological Survey, calendar year, data. Additional onerous conditions for a reconciliation of data resulted when transfers between the two agencies were considered, e.g., offshore receipts included bonuses and first year rentals for BLM and royalties and subsequent rentals for Geological Survey, although in many cases both funds are entered to "control accounts". Statistical difficulties were compounded when material sent from Washington got lost in the mail.

LOUISIANA'S SEVERANCE TAX REVENUE AS A PERCENTAGE OF TOTAL STATE TAX REVENUE -- 1952-71

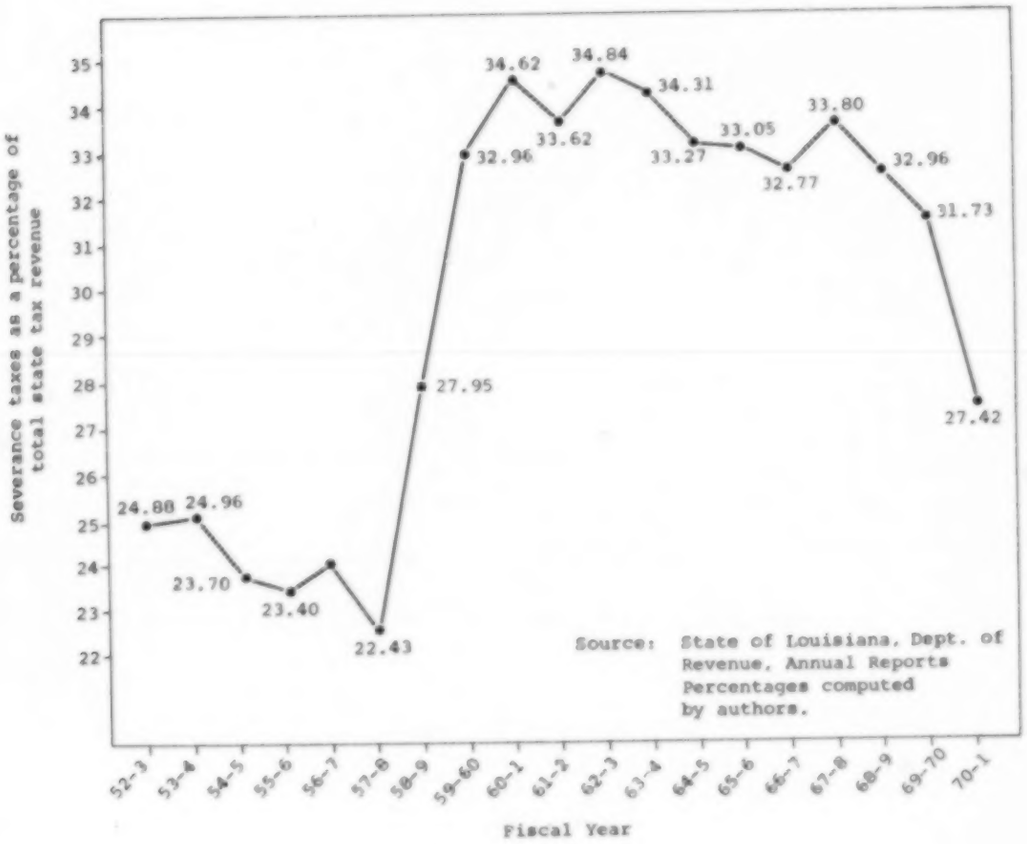
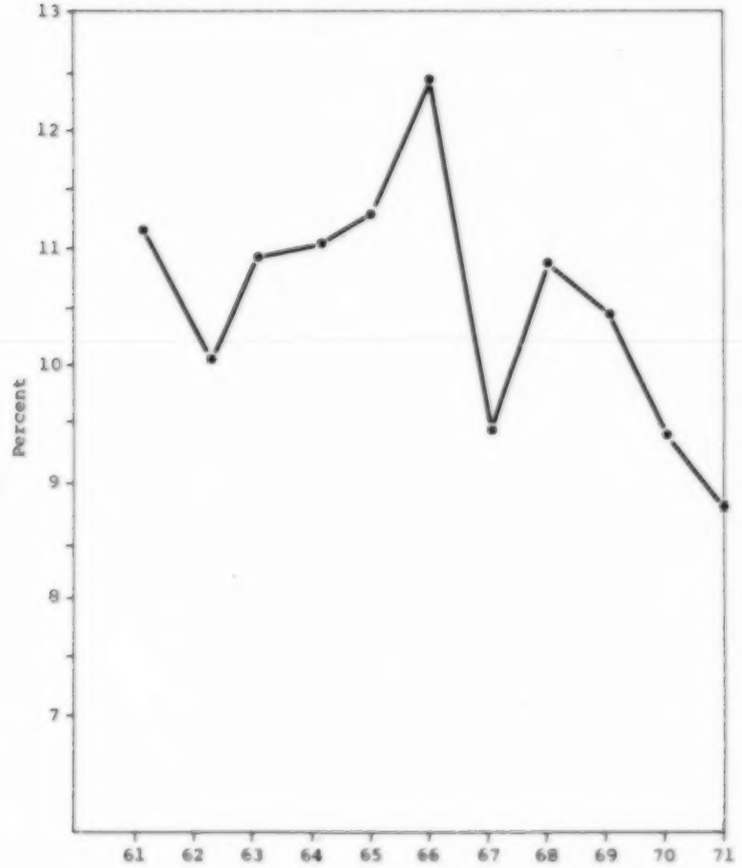


Figure 2

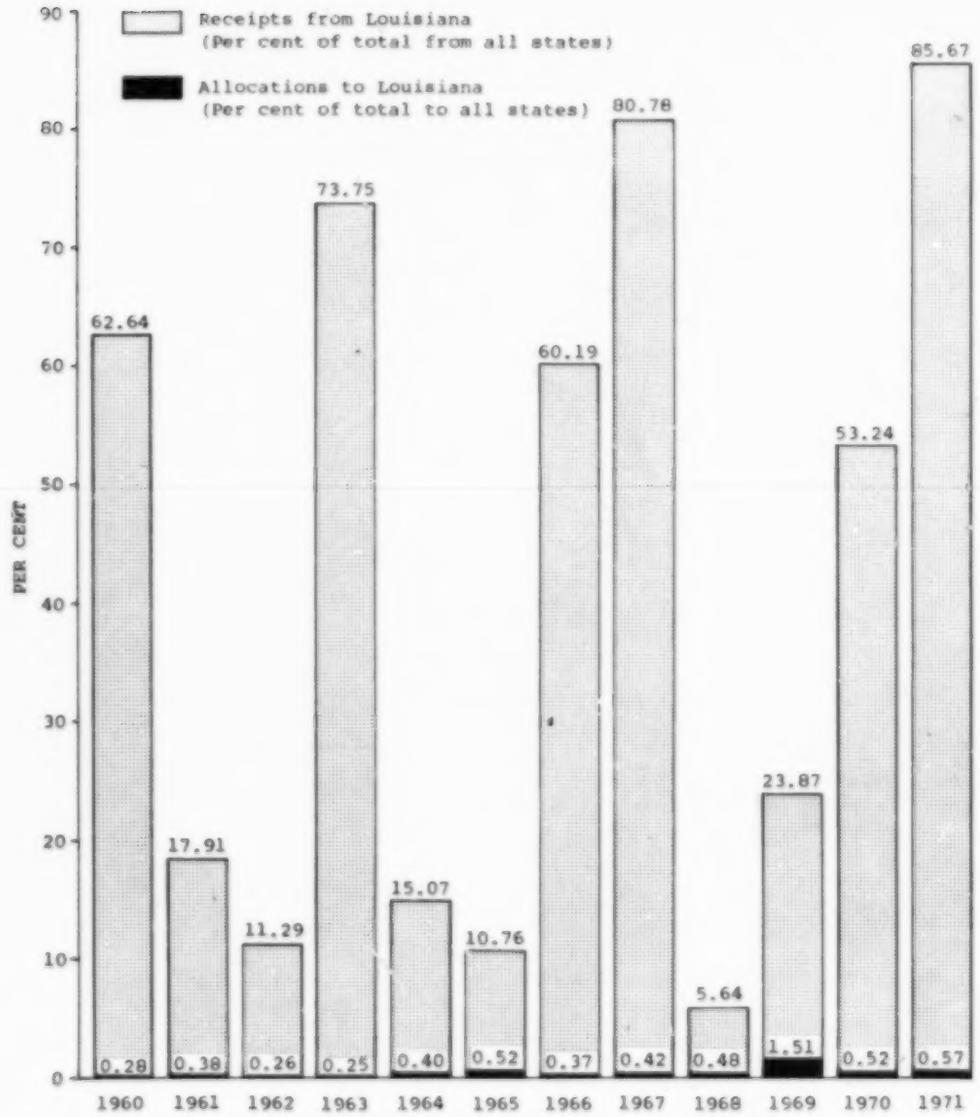
MINERAL LEASES, RENTALS, BONUSES, AND ROYALTIES RECEIVED BY LOUISIANA AS A PERCENTAGE OF TOTAL STATE REVENUE RECIEPTS -- FISCAL YEARS 1961-71



Source: Financial Statements, State of Louisiana, Fiscal Years ending June 30, 1960-1971.
Percentages computed by authors.

Figure 3

FEDERAL GOVERNMENT'S RECEIPTS/ALLOCATIONS FROM/TO LOUISIANA AS A PERCENTAGE OF RECEIPTS/ALLOCATIONS FROM/TO ALL STATES*



Source: Financial Statements (Financial Report) State of La.
Years ending 1960-1971
Division of Administration

* Includes receipts from onshore and offshore lands. Federal receipts from OCS adjacent to Louisiana were included in Louisiana totals.

Figure 4

total federal receipts from mineral leases on Federal lands in all states. Columns 8 and 9 are shown graphically in Figure 4. In 1960, for example, the federal government obtained 62.64 percent of its BLM revenues from Louisiana (including OCS) and in 1971 it received 85.67 percent from Louisiana. Column 10 presents the BLM allocations to Louisiana as a percent of total BLM allocations to all states. In 1960, Louisiana received 0.28 percent of these total allocations, and in 1971 it received 0.57 percent. During the 12 year period Louisiana received more than 1.0 percent only in one year (1969).* The major reason for Louisiana's small share is that the federal lands on the Outer Continental Shelf adjacent to Louisiana are not legally considered to be state land. Thus, Louisiana is excluded from receiving any royalties or bonuses.

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* Louisiana also receives a disproportionately low share of onshore revenues. In 1970, the federal government received 2.43 percent of total onshore revenues from Louisiana, but Louisiana received only 0.52 percent of total federal allocations to mineral leasing states.

Part II. Louisiana's Relative Mineral Revenue Sharing Position Among States

Present national policy* dictates that the Federal government must rebate to the states 37½ percent of the revenues it obtains from royalties, leases and bonuses from mineral production on Federal lands situated within the boundaries of these states. Such revenues are considered by many economists to be "in-lieu" or "impact" payments to compensate the states for the additional state costs resulting from the public support facilities provided by the state and municipalities. That such payments might have been viewed by the Congress as being "impact" payments is suggested by the language of the law itself which reads: "...said moneys to be used by such State or subdivisions thereof for the construction and maintenance of public roads or for the support of public schools or other public educational institutions, as the legislature may direct." (30 U.S.C. 191).

The purpose of this section is to provide a basis for a relative comparison among those states which are major recepients of the federal rebates.** The mineral production on Federal lands within these states is dominated by the production of four mineral categories: coal (bituminous coal and lignite), natural gasoline and liquid petroleum gases, petroleum (crude), and natural gas. Additional minerals include: carbon dioxide, sulphur, phosphate, potash, silica sand, and sodium, but their respective

*Mineral Leasing Act, February 20, 1920; 30 U.S.C. 191.

**The selected states are: Alabama, Arkansas, California, Colorado, Kansas, Louisiana, Mississippi, Montana Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Utah, and Wyoming.

production figures are diminuitive vis-a-vis the four major mineral categories. Table 2 presents the production data, 1970, relating the production of the four major groups on Federal lands to the total state production for the selected states.

TABLE 2.

SELECTED MINERALS, PRODUCTION DATA, 1970

State	Coal (Short Tons)	Natural Gas (Thousand Cubic Feet)	Gasoline and LP Gases (42-gal. BBLS)[1]	Petroleum-Crude (Barrels)
ALABAMA				
(1) Total State Production	20,560,000	627,000	W	7,263,000
(2) Production on Federal Lands within the State[2]	606	-	419	22,185
(3) (Row 2 ÷ Row 1) X 100	0.00%	-	-	0.31%
ALASKA				
(1) Total State Production	549,000	111,576,000	W	83,616,000
(2) Production on Federal Lands within the State[2]	306,400	43,616,256	69,755	13,150,976
(3) (Row 2 ÷ Row 1) X 100	56.12%	39.09%	-	15.73%
ARKANSAS				
(1) Total State Production	268,000	181,351,000	1,843,000	18,035,000
(2) Production on Federal Lands within the State[2]	-	297,045	-	2,862
(3) (Row 2 ÷ Row 1) X 100	-	0.16%	-	0.01%
CALIFORNIA				
(1) Total State Production	-	649,117,000	19,044,000	372,191,000
(2) Production on Federal Lands within the State[2]	-	27,752,866[3]	1,197,870	32,271,125[3]
(3) (Row 2 ÷ Row 1) X 100	-	4.27%	6.29%	8.67%
COLORADO				
(1) Total State Production	6,025,000	105,804,000	2,287,000	24,723,000
(2) Production on Federal Lands within the State[2]	1,863,000	48,406,052	653,992	11,047,436
(3) (Row 2 ÷ Row 1) X 100	30.92%	45.75%	28.60%	44.68%
KANSAS				
(1) Total State Production	1,627,000	899,955,000	27,363,000	84,853,000
(2) Production on Federal Lands within the State[2]	-	16,875,674	43	718,192
(3) (Row 2 ÷ Row 1) X 100	-	1.88%	0.00%	0.85%

State	Coal (Short Tons)	Natural Gas (Thousand Cubic Feet)	Gasoline and LP Gases (42-gal. BBLS)[1]	Petroleum-Crude (Barrels)
LOUISIANA				
(1) Total State Production	-	7,788,276,000	136,911,000	906,907,000
(2) Production on Federal Lands within the State[2]	-	1,847,784,011[4]	5,395,685[4]	306,033,568[4]
(3) (Row 2 ÷ Row 1) X 100	-	23.73%	3.94%	33.74%
MISSISSIPPI				
(1) Total State Production	-	126,031,000	972,000	65,119,000
(2) Production on Federal Lands within the State[2]	-	2,310,881	103	3,939,448
(3) (Row 2 ÷ Row 1) X 100	-	1.83%	0.01%	6.05%
MONTANA				
(1) Total State Production	3,447,000	42,705,000	W	37,879,000
(2) Production on Federal Lands within the State[2]	37,681	7,279,363	306,563	11,227,314
(3) (Row 2 ÷ Row 1) X 100	1.09%	17.05%	-	29.64%
NEBRASKA				
(1) Total State Production	-	5,991,000	365[5]	11,451,000
(2) Production on Federal Lands within the State[2]	-	34,342	-	2,540
(3) (Row 2 ÷ Row 1) X 100	-	0.57%	-	0.02%
NEW MEXICO				
(1) Total State Production	7,361,000	1,138,980,000	35,605,000	128,184,000
(2) Production on Federal Lands within the State[2]	5,760	564,602,189	5,828,211	33,012,310
(3) (Row 2 ÷ Row 1) X 100	0.08%	49.57%	16.37%	29.65%
NORTH DAKOTA				
(1) Total State Production	5,639,000	34,889,000	2,344,000	21,998,000
(2) Production on Federal Lands within the State[2]	996,340	2,393,507	461	2,216,771
(3) (Row 2 ÷ Row 1) X 100	17.67%	6.86%	0.02%	10.08%
OKLAHOMA				
(1) Total State Production	2,427,000	1,594,943,000	42,842,000	223,574,000
(2) Production on Federal Lands within the State[2]	293,547	15,521,237	34,090	346,162
(3) (Row 2 ÷ Row 1) X 100	12.10%	0.97%	0.08%	0.15%
SOUTH DAKOTA				
(1) Total State Production	-	-	-	160,000
(2) Production on Federal Lands within the State[2]	-	-	-	4,418
(3) (Row 2 ÷ Row 1) X 100	-	-	-	2.76%

State	Coal (Short Tons)	Natural Gas (Thousand Cubic Feet)	Gasoline and LP Gases (42-gal. BBLS)[1]	Petroleum-Crude (Barrels)
UTAH				
(1) Total State Production	4,733,000	42,781,000	W	23,370,000
(2) Production on Federal Lands within the State[2]	2,169,456	25,022,196	1,314,264	11,200,470
(3) (Row 2 ÷ Row 1) X 100	45.84%	58.49%	-	47.93%
WYOMING				
(1) Total State Production	7,222,000	338,520,000	7,153,000	160,345,000
(2) Production on Federal Lands within the State[2]	1,666,795	154,367,025	2,722,120	92,221,771
(3) (Row 2 ÷ Row 1) X 100	23.08%	45.60%	38.06%	57.51%

SOURCES: State Production From - U.S. Department of the Interior, Bureau of Mines Minerals Yearbook, Statistical Summary, 1970.
Production on Federal Lands From - U.S, Department of the Interior, Bureau of Land Management, Public Land Statistics, 1970.

W Withheld to avoid disclosing individual company confidential data.

[1]The Federal land data are expressed in gallons and the total state production are given in "thousand 42-gallon barrels". Accordingly, both were converted to "42-gallon barrels".

[2]Includes mineral production on both "public lands" and "acquired lands": Public lands = Original public domain lands which have never left Federal ownership; Acquired lands = Lands in Federal ownership which are not public land; acquired lands were obtained by the Government through purchase, condemnation or gift, or by exchange for purchased, condemned, or donated lands, or for timber on such lands.

[3]Includes production on Federal lands within the state jurisdiction and also from the Outer Continental Shelf. The individual components are: Natural gas - 22,907,015 thousand cubic feet from within state and 4,845,851 thousand cubic feet from OCS; Petroleum - 22,330,281 Barrels from within state and 9,940,844 Barrels from OCS.

[4]Includes production on Federal lands within the state jurisdiction and also from the OCS. The individual components are: Natural gas - 25,239,869 thousand cubic feet from within state and 1,822,544,142 from OCS; Gasoline and LP gases - 99,725 42-gal. barrels from within state and 5,295,960 42-gal. barrels from OCS; and Petroleum 5,874,276 Barrels from within state and 300, 159,292 Barrels from OCS.

[5]Includes only data on LP gases; natural gasoline data were withheld.

Row three of each state's sub-heading indicates the percentage of the total state production that occurs on Federal lands. However, a number of qualifications need to be noted in interpreting the data. First, the data for

Louisiana and California include mineral production on the Outer Continental Shelf. The production without this inclusion is presented in respective footnotes. For a cursory illustration of the role Louisiana plays in the mineral production on the Outer Continental Shelf, see Table 3.

TABLE 3.

MINERAL PRODUCTION ON THE OUTER CONTINENTAL SHELF, 1970

State	Production		
	Petroleum Barrels	Gas Thousand Cubic Feet	Gasoline and Liquid Petroleum Gas Gallons
California	9,940,844	4,845,851	-
Louisiana	300,159,292	1,822,544,142	222,430,316
Texas	2,759,851	127,096,982	-
Total	312,859,987	1,954,486,975	222,430,316
Louisiana's Production as a % of Total	95.94%	93.25%	100.00%

SOURCE: U.S. Department of the Interior, Bureau of Land Management, Public Land Statistics, 1970.

Second, it is not possible to make a statement concerning the "overall" dimensions of mineral production on Federal lands. The different units of measurement, plus the inability to precisely assign the relative weights which each mineral contributes to an aggregate index of mineral production, makes such an exercise meaningless. Hence, the alternative is to examine each mineral individually.

In terms of absolute volume of production, Louisiana ranks first in the production of petroleum, natural gas production and total gasoline and LP gases.* Also, more natural gas, crude petroleum and gasoline and LP gases are produced on federal lands in Louisiana than in any other state, with the exception of New Mexico which produces slightly more gasoline and LP gases on federal land than Louisiana.

Louisiana ranks second (Colorado is first) in the proportion of crude production on federal lands relative to total crude production in the state; it ranks fourth in proportion of gasoline and LP production on federal land; and it ranks fifth in proportion of natural gas produced on federal land.

Data contained in Table 2 were also used to estimate the number of em ployees in each state who were involved in mineral production on federal lands.

Data on employment in coal mining and oil and gas extraction, by land revenue states, are shown in Table 4. In order to determine the percentage of mining employment on federal lands, the production ratio in Table 2 had to be used. Because production of natural gas, gasoline, LP gases and petroleum are expressed in non-comparable units, it was assumed that the federal-state proportion of each state's oil and gas production could be represented by the proportion of each state's crude petroleum production. In order to obtain an overall proportion of mining employment on federal lands the following procedure was used:

*Texas, which is omitted from the list of states in Table 2 because of its small proportion of production on federal lands, surpasses Louisiana in total volume of production of these minerals.

TABLE 4.
DISTRIBUTION OF FEDERAL MINERAL LEASING ACT
REVENUES PER EMPLOYEE ON FEDERAL LANDS,
BY SELECTED STATES, 1970

	[1] Percentage of State Coal Production on Federal Lands	[2] State Employment in Bituminous Coal and Lignite Mining	[3] Estimated Employment on Federal Lands (Coal) [(Col.1/100)xCol.2]	[4] Percentage of State Crude Petroleum Production on Federal Lands	[5] State Employment in Oil and Gas Extraction	[6] Estimated Employment on Federal Lands (Oil & Gas) [(Col.4/100)xCol.5]	[7] Total Estimated Employment On Federal Lands [Col.3+Col.6]	[8] Allocation to States from Mineral Leasing Acts	[9] Per Employee Allocations from Production on Federal Lands [Col.8÷Col.7]
Alabama	---	4,809	---	0.31%	675	---	N.C.	5,898	N.C.
Alaska	56.12%	---	---	15.73%	2,640	415	415	8,287,065	$19,968.83
Arkansas	---	153	---	0.01%	1,910	---	N.C.	20,788	N.C.
California	---	---	---	8.67%	20,199	1,751	1,751	3,077,842	1,757.76
Colorado	30.92%	1,330	411	44.68%	4,938	2,206	2,617	3,090,165	1,180.80
Kansas	---	---	---	0.85%	8,422	72	72	179,920	2,498.89
Louisiana	---	---	---	33.74%[1]	39,951	13,479	13,479	282,658	20.97
Mississippi	---	---	---	6.05%	4,719	285	285	15,980	56.07
Montana	1.09%	W[2]	---	29.64%	1,468	435	435	2,938,416	6,754.98
Nebraska	---	---	---	0.02%	675	---	N.C.	437,897	N.C.
New Mexico	0.08%	442	---	29.65%	6,942	2,058	2,058	12,293,776	5,973.65
North Dakota	17.67%	308	54	10.08%	1,420	143	197	200,324	1,016.87
Oklahoma	12.10%	481	58	0.15%	20,144	30	88	198,560	2,256.36
South Dakota	---	---	---	2.76%	115	---	N.C.	175,576	N.C.
Utah	45.84%	1,083	496	47.93%	1,122	538	1,034	3,250,205	3,143.33
Wyoming	23.08%	360	83	57.51%	6,093	3,504	3,587	19,083,641	5,320.22

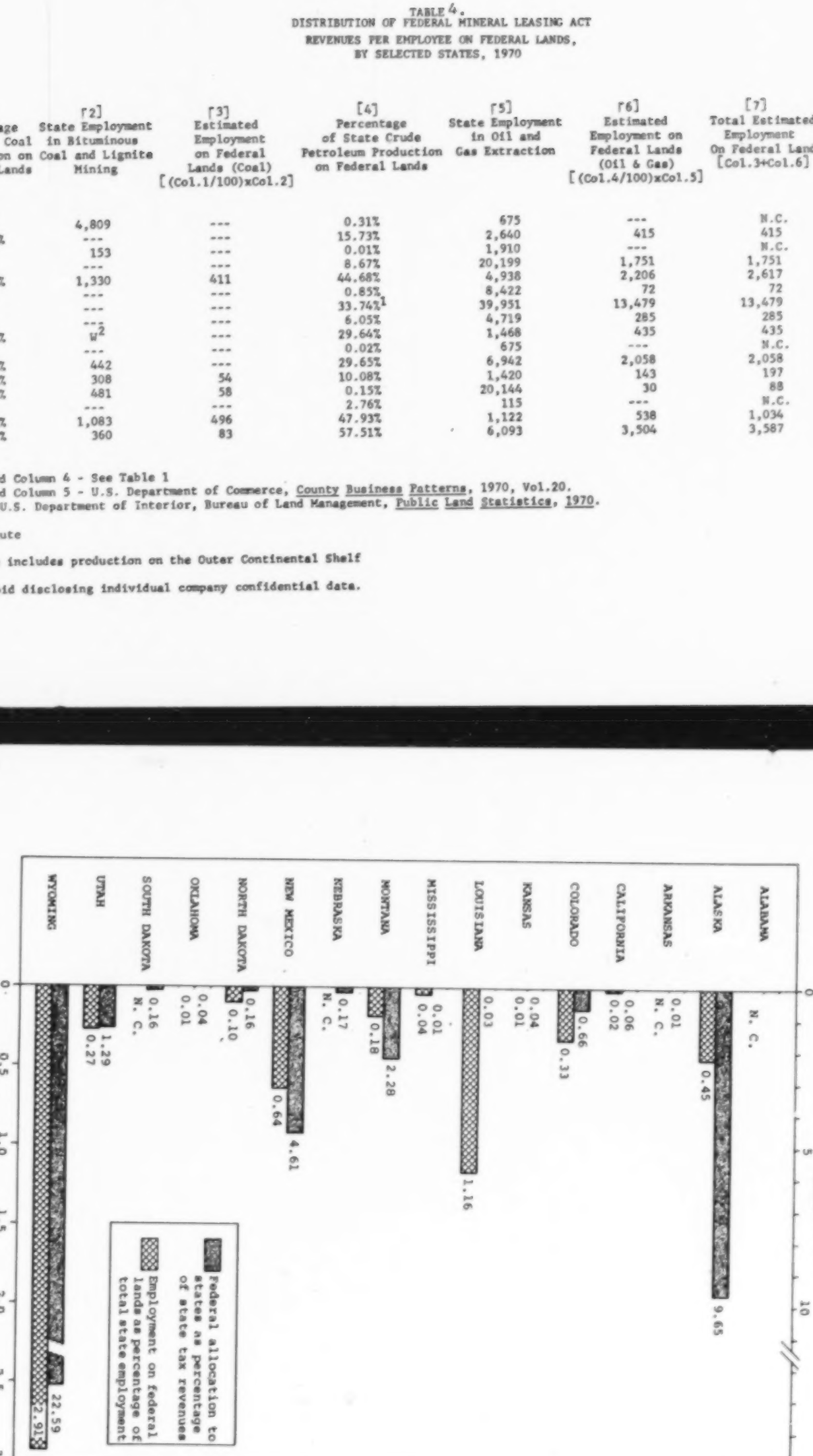
Sources: Column 1 and Column 4 - See Table 1
Column 2 and Column 5 - U.S. Department of Commerce, County Business Patterns, 1970, Vol.20.
Column 8 - U.S. Department of Interior, Bureau of Land Management, Public Land Statistics, 1970.

N.C. - Unable to compute

[1]This percentage includes production on the Outer Continental Shelf

[2]Withheld to avoid disclosing individual company confidential data.

COMPARISON OF ALLOCATION OF FEDERAL LAND REVENUES TO STATES AS PERCENTAGE OF STATE TAX REVENUES WITH RATIO OF EMPLOYMENT ON FEDERAL LANDS TO TOTAL STATE EMPLOYMENT FOR 1970



Sources: U.S. Dept. of Commerce, Bureau of the Census, State Tax Collections in 1970.
U.S. Dept of the Interior, Bureau of Land Management, Public Land Statistics, 1970.
All computations by authors.

Figure 5

a. Proportion of state petroleum production on Federal lands (x) state employment in oil and gas extraction

Plus,

b. Proportion of state coal production on Federal land (x) state employment in coal mining.

The sum of (a) and (b) yields a reasonable proxy for total state mineral employment on Federal lands. The estimates resulting from this procedure are listed in Table 4, column (7). Column (8) shows the Mineral Leasing Act allocations made to the States in 1970 and column (9) presents the Mineral Leasing Act revenues divided by the number of employees engaged in mineral production on Federal lands. Figure 5 presents a comparison of the allocation of federal land revenues to the individual states as percentage of each states total tax revenues with the ratio of employment on federal lands to total state employment (1970). Alaska received federal land payments equal to 9.65 percent of its total tax revenues and had .45 percent of its employee force working on federal lands. Wyoming received federal land payments equal to 22.60 percent of its total tax revenues and had 2.91 percent of its employees working on federal lands. Louisiana received only .03 percent of its tax revenues in federal land payments but had 1.16 percent of its employees working on federal lands.

As can be observed in Table 4, Louisiana ranks lowest among the states in revenue received per federal land employee. Whereas Alaska received $19,968.83 per employee, Montana received $6,754.98 per employee, and New Mexico's rebate was $5,973.65, Louisiana's revenue was only $20.97 per employee.

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The major reason for this inordinately low amount for Louisiana is that approximately 98 percent of the production on Federal lands that was assigned to Louisiana actually occurs on the Outer Continental Shelf which is, for purposes of the current law, considered to be outside the state's boundary or within a contested area. However, if these funds are considered to be "in lieu" or impact payments, Louisiana bears a burden equal to, and probably greater than the other states because of the added costs to servicing offshore facilities, costs of potential damage to the coastal zone, marine life and so forth. Unfortunately, many of the special costs accuring to the State of Louisiana, its industries and citizens, could not be itemized. The following section, however, does attempt to detail some of the more routine impact costs.

Part III - Estimates of State Costs

A. General

In order to begin to detail the costs accruing to the State of Louisiana from federal offshore activity, the values of four variables had to be determined. First, the parishes to be included in the study had to be specified; second, the number of employees on federal offshore land relative to total employment in the relevant parishes had to be determined; third, the expenditures (revenues) for parishes had to be gathered; and fourth, appropriate State expenditures had to be allocated.

With only a few noted exceptions, the base year for determining all of these variables was fiscal year 1969-70, or calendar year 1970. Thus the extimated costs are for a single year only.

The reader is urged to read each section thoroughly since the methodolog employed considerably affected the estimates obtained. Many judgmental decisions had to be made, but there was a conscientious effort not to weigh such decisions in favor of the State of Louisiana. In fact, the cost estimates presented in this report are minimal cost estimates. Generally, only those State costs which could be directly allocated to the federal offshore area or to the coastal parishes were included. No allocations were made on the basis of general State costs, administrative overhead, etc. In the case of higher education, there was a general allocation to the employees on federal offshore lands and a rough approximation was made for community healt clinics since only total State appropriations were available.

B. The Coastal Parishes

Employees working on federal offshore land create additional costs for the coastal parishes, the parishes in which they reside, and the State of

Louisiana. In order to determine the total costs to parishes, it was necessary to specify the parishes which would be included in the study. Obviously the coastal parishes should be included. But because of the working schedules on the offshore platforms, many employees live in parishes not adjacent to the offshore area. After investigating transportation routes, employment patterns, and dispersion of urban centers, it was decided that the following parishes should be included in the study and they will hereafter be referred to as the coastal parishes:

Assumption	Plaquemines
Calcasieu	St. Bernard
Cameron	St. Martin
Iberia	St. Mary
Jefferson	Terrebonne
Lafourche	Vermilion

The inclusion of any given parish will affect the results in two opposing ways. On the one hand it will increase total parish expenditures which will tend to result in larger applicable costs; on the other hand it will produce a smaller ratio of employees on federal offshore land relative to total employment in the parishes. A priori, one cannot determine whether the addition of any parish would increase or decrease allocable costs. The relatively populous parishes of Jefferson and Calcasieu were included, whereas those of Orleans, East Baton Rouge, and Lafayette were excluded.

C. The Basic Ratio

The basic ratio is that ratio which when applied to total public expenditures will produce the approximate dollar amounts allocable to those individuals employed on the federal lands offshore the coast of Louisiana. Population data could not be segmented in any relevant way, hence employment data had to be used. The objective, therefore, was to determine the percentage of employees in the twelve coastal parishes whose employment was directly related to federal offshore production. Unfortunately, no currently published data breaks out data on onshore-offshore employment or, needless to say, on the division between State offshore and federal offshore employment. Hence, federal offshore employment had to be obtained in other ways. Two alternative methods were employed. First, the Mid-Continent Oil and Gas Association was asked to pool its member companies and contractors on the number of employees whose work was directly associated with the federal offshore operations. On the basis of their man-hour records, they reported that approximately 12,500 employees either worked on the rigs in the federal offshore area or were onshore employees whose time could be directly allocated to federal offshore production. Employees such as office clerks whose work involved both onshore and offshore activities were not included.

While the Mid-Continent Oil and Gas Association was gathering its data, the authors pursued an alternative method. The following data on employment was obtained from the United States Department of Commerce.

TABLE 5

PARISH	TOTAL MINING EMPLOYMENT	EMPLOYMENT IN OIL AND GAS EXTRACTION
Assumption	219	219
Calcasieu	1,470	1,428
Cameron	1,363	1,363
Iberia	1,662	969
Jefferson	6,126	5,636
Lafourche	1,183	1,183
Plaquemines	5,222	4,358
St. Bernard	85	85
St. Martin	862	862
St. Mary	4,471	3,971
Terrebonne	3,785	3,785
Vermilion	1,133	1,133
TOTAL	27,581	24,992

Source: U.S. Department of Commerce; County Business Patterns, 1970

From this information it was determined that 27,581 individuals were employed in mining in the coastal parishes, of which 24,992 [90.61%] were employed in oil and gas extraction. However, not all of these employees could be allocated to offshore production on federal lands. Since there exists no published data on federal offshore employment, the authors decided to weigh total employment in oil and gas extraction with oil and gas production on onshore lands within the coastal parishes plus production on the State offshore lands on the one hand, and the crude production offshore within potential federal jurisdiction on the other hand. Table 6 presents crude oil production for the coastal parishes.*

*In order to conserve time and resources, and to avoid further complicating weighting problems, it was assumed that the State-federal ratio of oil and gas could be approximated by data on the production of crude oil alone.

TABLE 6
CRUDE OIL PRODUCTION, ONSHORE
AND INTERMEDIATE ZONE,
BY COASTAL PARISHES
1970

PARISH	BARRELS
Assumption	1,390,216
Calcasieu	6,181,175
Cameron	15,097,672
Iberia	15,393,644
Jefferson	18,519,552
Lafourche	47,189,640
Plaquemines	102,114,243
St. Bernard	1,650,927
St. Martin	12,720,535
St. Mary	33,272,670
Terrebonne	59,655,888
Vermilion	7,034,684
	320,220,846

Source: Private memorandum from F. L. Spencer, Louisiana Department of Conservation

In addition to the 320,220,846 barrels produced onshore and in the intermediate zone, the production within the offshore area under state jurisdiction had to be added in Table 7 .

TABLE 7

A. Production of Crude in Coastal Parishes and Adjacent Offshore Areas

	Barrels	
Onshore and Intermediate	320,801,155	
Offshore*		
Zone 0	17,268,392	
Zone 1	53,311,917	
		384,801,155
B. Production of Crude in Federal Area*		
Zone 2	128,355,383	
Zone 3	63,159,766	
Zone 4	120,087,159	
		311,602,308
Total Production in both areas		696,403,463

*Data on production of crude oil in the offshore zones were obtained from: Annual Oil and Gas Report, 1970, Louisiana Department of Conservation.

Hence, taking the ratio of crude oil produced on federal lands [311,602,308 barrels] relative to total production in the coastal area [696,403,463] and applying this ratio to the total number of coastal parish employees engaged in oil and gas extraction, we obtain an estimated number of federal offshore employees:

$$\frac{311,602,308}{696,403,463} \times 24,992 = 11,182$$

This approximation of 11,182 employees employed on federal offshore production is amazingly close to the 12,500 employee estimate which resulted from the man-hour study of the Mid-Continent Oil and Gas Association. Since the latter figure was based on micro data, whereas the former was based on a macro approximation, the 12,500 figure will be used. Its general accuracy, however, is verified by its closeness to the figure obtained by the macro approximation.

The 12,500 federal area employment figure includes only those employees directly employed by the production companies or contractors and does not include employees in the complemental industries. Particularly important among the complemental industries is transportation. There are numerous qualitative and quantitative problems in determining the number of transportation employees which should be allocated to federal offshore activity. The major qualitative problem is that these employees work for private, shore-based companies which are subject to all of the local and State taxes. Hence, there would seem to be little argument for including them in the basic ratio. On the other hand, these transportation companies generally use more intensively than other companies such public facilities as harbors, highways, dams, locks, and airports which are financed from State and local revenues. For example, approxi-

mately 60 percent of the vessels using the Empire and Ostrica locks were directly or indirectly connected with the oil industry.*

Also, Plaquemines Parish is reported to have spent $48,024,008.00 to create a four-lane highway from Belle Chasse to Venice to accomodate the heavy truck and bus traffic carrying workers, heavy machinery and other supplies to the head of the Mississippi Passes.**

Table 8 presents the number of employees engaged in water transportation by parish:

TABLE 8

Parish	Employees In Water Transportation
Assumption	29
Calcasieu	448
Cameron	89
Iberia	221
Jefferson	1864
Lafourche	1869
Plaquemines	844
St. Bernard	102
St. Martin	47
St. Mary	1617
Terrebonne	964
Vermilion	208
TOTAL	8302

Source: U.S. Department of Commerce, County Business Patterns, 1970.

The total number of employees in water transportation could not be included in the basic ratio since many of them are employed in oceangoing

*Louisiana Department of Public Works, Biennial Report, 1970-1971, p. 30.

**This figure was taken from "Revenue Sharing, Earned and Deserved," a pamphlet prepared by George W. Healy, Jr., Editor, the Times-Picayune. The authors did not attempt to verify or deny this figure or to obtain traffic data on the road. Consequently, it was not included in the calculations.

or barge traffic which has little relationship to federal offshore production. Also, if the number of water transportation employees related to offshore oil production could be determined, only a percentage of that amount could be allocated to federal offshore production. After considerable deliberation on the qualitative and quantitative difficulties, it was decided that all water transportation employees would be excluded from the basic ratio. It should be pointed out that such exclusion reduces considerably the basic ratio which is applied to State and local expenditures and, thus, the computed State costs of production in the federal offshore area. However, the inherent difficulties of determining even an approximate number of allocable water transportation employees and the desire of the authors to eliminate any exaggeration of State costs required them to reach this decision.

Another relevant area of transportation is aviation, primarily helicopters. According to Mr. Ryan of Petroleum Helicopters Company, the company employs 790 individuals of whom almost all are directly employed in providing air shuttle service to offshore rigs. Because the federal offshore area is serviced primarily by air, whereas the State offshore area, which is closer to shore, has a larger percentage of boat shuttles, it was decided to include 750 of Petroleum Helicopters employees in the basic ratio.

Hence, only the 12,500 employees whose work is directly connected with federal offshore production plus the 750 employees of Petroleum Helicopters who provide shuttle service primarily to the federal offshore area are included in the basic ratio. All other employees such as office clerks, onshore maintenance workers, water transportation employees, etc., have been excluded.

TABLE 9
TOTAL EMPLOYMENT IN COASTAL PARISHES
1970

Parish	Employment
Assumption	4,929
Calcasieu	47,648
Cameron	2,601
Iberia	17,346
Jefferson	122,345
Lafourche	20,964
Plaquemines	7,905
St. Bernard	17,521
St. Martin	8,301
St. Mary	19,130
Terrebonne	22,958
Vermilion	12,519
TOTAL	304,167

Source: U.S. Census, General Social, and Economic Characteristics, 1970, Vol. 20.

The basic ratio is computed as follows: employees of oil and contracting companies whose work is directly allocable to federal offshore activity + employees of Petroleum Helicopters who service federal offshore activity ÷ total employment in coastal parishes [Table 9] or:

$$\frac{12,500 + 750}{304,167} = .0436$$

Approximately 4.36% of total employment in the coastal parishes can be attributed to federal offshore activity. This percentage will be applied to the costs of public services in these coastal parishes.

D. Parish Revenues

1. General

Any attempt to determine the marginal costs to the State and parishes of the individuals employed on federal offshore lands is analytically and

statistically impossible. An attempt can be made, however, to determine the average allocable costs of those public services that can be marginally related to those individuals. A thorough survey of such costs would require considerably more time than was available to the authors. Undoubtedly many State, parish, or local expenditures were excluded because of these time constraints. Only parish and State expenditures which could be allocated to coastal parishes or directly to federal offshore activities were included in the study. Reliable data on parish revenue and expenditures is not easy to obtain. The United States Census of Governments, which is published every five years, details revenues and expenditures by local governments, but it was last published for 1966-67 and, despite the authors' attempt to obtain preliminary data being prepared for the 1971-72 Census of Governments, such data simply was not available at the time this report was being written. Two other data sources were available. One source was the parish offices which had to be rejected because personal visits would have had to been made, requiring time allocations which were not available, and any data obtained from such visits, if made, would probably have not been consistent among parishes. The other source of data was the periodic audit of parishes conducted by the Legislative Auditor which seemed to be the more favorable alternative. Audits were obtained for the various administrative or financial units in each parish. Data on municipalities which were not reflected in these parish audits were excluded.

In reporting the data obtained from the office of the Legislative Auditor, the authors could have used data on revenues or on expenditures. Because the revenues were obtained from numerous sources, including intra-parish transfers, State, and federal sources, and because the expenditures could not be allocated

to these revenue sources, it was decided that revenues rather than expenditures would be used.

Because the purpose of this study is to determine the State and parish burden resulting from the federal offshore activity, all user charges, utility receipts, fees, fines, tuition payments, and federal grants of all types were excluded. Fees obtained from marriage licenses, for example, were excluded because they represent a payment for clerical services performed for the individual and such revenues increase in direct relation to the number of individuals demanding such services. Hence the primary sources of parish or district revenues were those obtained from taxes and from State agencies where such amounts were not included in the State agency data presented in other parts of the report. Revenues for education, for example, were excluded in the parish data because they were included in the State Department of Education data presented separately below.

One serious problem confronting the authors was potential double counting. All parishes have a general fund which they use to support numerous activities and from which they often make grants to other funds. In addition, there is duplication of revenues for some State agencies and parishes. An intensive effort was made to eliminate all potential sources of double counting and few, if any, remain.

2. Data on Parish Revenues [Generally 1970]

ASSUMPTION

12/31/70	Assessor--Salary Fund		$ 5,407.18
12/31/70	Drainage District (Hard Times)		489.30
12/31/70	Gravity Drainage District #4		971.79
12/31/70	Marais Gravity Drainage District		660.59
12/31/70	Police Jury		
	General Fund	$ 128,117.95	
	Road and Bridge Fund	67,725.98	
	Sundry		
	Library	870.79	
	Road Lighting District #1	5,184.17	
	Road Lighting District #2	1,802.31	
	Sales Tax	312,660.88	
	Severence Tax	24,497.47	
	Sinking Fund	91,154.19	
			632,013.74
6/30/70	Sheriff--Salary Fund		215,217.60
	Total		$ 854,760.20

Allocable Amount: $854,760.20 x .0436 = $ 37,267.54

NOTE: The allocable amount for each parish is obtained by taking total revenues obtained from taxes or from other agencies where agency data is not reported elsewhere times the basic ratio [.0436] of federal offshore employment divided by the total employment in the coastal parishes.

CALCASIEU

12/31/70	Airport District #1		
	Maintenance Fund	$ 88,723.23	
	Sinking Fund	310,531.52	
			$ 399,254.75
12/31/70	Assessor-Salary Fund		24,662.59
12/31/70	Community Center and Playground		
	District #1		
	Maintenance Fund	10,051.16	
	Sinking Fund	2,456.00	
			12,507.16
	District #2		220,078.85
	District #3		
	General Fund	17,702.56	
	Sinking Fund	50,119.56	
			67,822.12
	District #4		
	Maintenance Fund	183.11	
	Sinking Fund	13,049.70	
			13,232.81
12/31/70	Gravity Drainage District #7		26,912.15
12/31/70	Lake Charles Harbor & Terminal-Sinking Fund		1,327,711.76
12/31/70	Library		206,457.25
12/31/70	Police Jury		
	General Fund	913,334.23	
	Parishwide Road Maintenance	1,560,496.65	
	Road District Maintenance	1,145,467.33	
	Parishwide Drainage Maintenance	267,991.08	
	Health Unit	401,428.08	
	Paving Projects	48,837.41	
	Ward 3 Fire Protection	77,906.53	
	Juvenile Detention & Probation Officer	133,809.32	
	Parish Park	3,415.35	
	Sundry Fund	3,761.58	
	Sinking Fund	92,733.48	
			4,649,181.04
6/30/70	Sheriff-Salary Fund		1,587,237.15
	Total		$8,535,057.63

Allocable Amount: $8,535,057.63 x .0436 = $372,128.51

CAMERON

12/31/70	Assessor-Salary Fund		$ 5,652.30
12/31/70	East Cameron Port, Harbor & Terminal District		
	Maintenance Fund	$ 13,030.46	
	Sinking Fund	10,108.32	
			23,138.78
12/31/70	Library		
	Construction & Maintenance	68,304.70	
	Sundry	195.62	
			68,500.32
12/31/70	Police Jury		
	General Fund	178,245.35	
	Road Maintenance Fund	235,715.00	
	Courthouse & Jail Maintenance	71,658.18	
	Road District #7-Construction	3,495.46	
	Fire Protection District #7 - Maintenance	21,062.44	
	Hackberry Fire Protection District #1	9,836.58	
	Sundry		
	Special Account #1	8,280.22	
	Health Unit	30,902.34	
	Garbage District #1	13,156.66	
	Garbage District #2	19,348.77	
	Road District #7-Sinking Fund	22,683.87	
	Bridge Revenue-Sinking Fund	923.49	
	Fire Protection District #7-Sinking Fund	15,172.61	
			630,480.97
12/31/70	Sewage District #1		
	Maintenance Fund	16,823.19	
	Sinking Fund	7,398.24	
			24,221.43
6/30/70	Sheriff-Salary Fund		241,072.03
	Total		$ 993,065.83

Allocable Amount: $993,065.83 x .0436 = $43,297.67

IBERIA

12/31/70	Assessor-Salary Fund		$ 11,831.27
12/31/70	Hospital Service District #2		
	Maintenance Fund	$ 15,689.60	
	Sinking Fund	17,379.27	
			33,068.87
12/31/70	Library		133,890.61
12/31/70	Police Jury		
	General Fund	467,043.93	
	Road Maintenance	297,996.93	
	Drainage Maintenance	267,780.87	
	Blacktop Road Maintenance	15,000.00	
	Hospital Maintenance	33,472.82	
	Health Unit	133,890.16	
	Fire Protection District Maintenance	37,727.55	
	Redemption and Retirement	329,268.86	
			1,582,18[illegible]
12/31/70	Recreation District #8		28,83[illegible].42
6/30/70	Sheriff-Salary Fund		467,703.96
	Total		$2,257,509.25

Allocable Amount: $2,257,509.25 x .0436 = $98,427.40

JEFFERSON

12/31/70	Assessor-Salary Fund		$ 23,627.07
12/31/70	Coroner		315,032.76
12/31/68	Jefferson Parish Council		
	General Fund	$2,323,014.61	
	Sundry-Health Unit	872,315.78	
	Sinking Fund	2,414,731.48	
	Road and Bridges Fund	4,534,352.27	
	Amortization Fund for Paving	2,812,801.43	
	Road Lighting Districts	709,518.63	
	Fire Protection Districts		
	General Fund	1,258,284.30	
	Sinking Fund	141,411.58	
	Garbage Districts		
	General Fund	1,014,725.99	
	Sinking Fund	244,700.41	
	Sewage Districts		
	General Fund	235,379.16	
	Sinking Fund	1,686,078.85	
	Playground Districts		
	General Fund	725,253.23	
	Sinking Fund	269,578.78	
	Library	1,076,590.44	
	Drainage Districts		
	General Fund	2,098,539.34	
	Sinking Fund	1,477,468.26	
	Waterworks District #1		
	Amortization for Water Line	505,936.36	
	Hospital Service District		
	General Fund	78,138.49	
	Sinking Fund	106,792.06	
	Juvenile Detention Fund		
	General Fund	135,148.93	
	Sinking Fund	64,606.85	
			24,785,367.23
6/30/70	Sheriff-Salary Fund		4,587,925.47
12/31/70	Water Works District #2		373,000.00
	Total		$30,084,952.53

Allocable Amount: $30,084,952.53 x .0436 = $ 1,311,703.93

LAFOURCHE

12/31/70	Drainage District #12		
	Subdistrict #1-Maintenance	$ 2,671.66	
	Subdistrict #2	3,593.56	
	Subdistrict #3	5,422.95	
			$ 11,688.17
12/31/70	Port Commission-General Fund		190,075.62
6/30/70	Sheriff-Salary Fund		742,746.32
	Total		$ 944,510.11

Allocable Amount $944,510.11 x .0436 = $ 41,180.64

PLAQUEMINES

12/31/70	Parish Commission Council		
	General Fund	$1,145,780.71	
	Bond Liquidation	259,555.36	
	Garbage District Fund	191,586.64	
	Library	135,960.25	
			$1,732,882.96
6/30/70	Sheriff-Salary Fund		301,759.40
	Total		$2,034,642.36

Allocable Amount: $2,034,642.36 x .0436 = $ 88,710.41

ST. BERNARD

12/31/70	Assessor-Salary Fund		$ 3,356.88
12/31/70	Library		
	Operating Fund	$ 123,454.66	
	Sinking Fund	17,636.37	
			141,091.03
12/31/70	Police Jury		
	General Fund	1,481,850.97	
	Road District #1	483,133.58	
	Road Lighting District #1	78,992.50	
	Garbage District	246,004.85	
	Fire Protection District #1	236,347.48	
	Fire Protection District #2	62,230.71	
	Recreation Department	185,808.68	
	Paving Fund	57,384.38	
	Bond Redeemption Trust Fund	112,000.00	
	Sinking Fund	960,621.61	
			3,904,374.76
	Total		$4,048,822.67

Allocable Amount: $4,048,822.67 x .0436 = $176,528.67

ST. MARTIN

12/31/70	Assessor-Salary Fund		2,992.17
12/31/70	Library-Maintenance		109,062.73
12/31/70	Police Jury		
	General Fund	$ 196,767.05	
	Road and Drainage	342,829.88	
	Sundry-Maintenance	174,488.31	
	Sinking Fund	142,485.65	
			856,570.89
6/30/70	Sheriff-Salary Fund		268,588.64
	Total		$1,237,214.43

Allocable Amount: $1,237,214.43 x .0436 = $53,942.55

ST. MARY

12/31/70	Assessor-Salary Fund		$ 15,845.91
12/31/70	Bayou Cypremort Gravity Drainage District #1		773.70
12/31/70	Gravity Drainage District #3		
	Construction Fund	$ 1,275.00	
	Maintenance Fund	4,017.02	
	Sundry	53,385.48	
			58,677.50
12/31/70	Hospital Service District #1		
	Maintenance	35,685.00	
	Gifts and Donations	12,091.00	
	Sinking Fund	149,283.00	
			197,059.00
12/31/70	Library		207,353.79
12/31/70	Police Jury		
	General Fund	475,768.42	
	Road Construction & Maintenance	244,779.89	
	Consolidated Gravity Drainage	124,216.08	
	Sales and Use Tax Collection	2,046,058.85	
	Sinking Fund	289,412.21	
			3,180,235.45
12/31/70	Sewage District #1		
	Maintenance Fund	12,953.32	
	Sinking Fund	14,612.22	
			27,565.54
6/30/70	Sheriff-Salary Fund		558,514.18
11/30/70	Waterworks District #6		61,115.00
12/31/70	Wax Lake Drainage District & Subdistrict #1		37,800.39
	Total		$4,344,940.46

Allocable Amount: $4,344,940.46 x .0436 = $189,439.40

TERREBONNE

12/31/70	Assessor--Salary Fund		$ 20,420.98
12/31/70	Library		140,884.23
12/31/70	Police Jury		
	General Fund	$ 840,468.33	
	Road and Bridge Fund	305,571.98	
	Drainage Maintenance	309,808.40	
	Fire Protection	68,901.00	
	Garbage Districts	335,656.70	
	Road Lighting Districts	121,675.36	
	Sales Tax	2,296,577.27	
	Retarded Children's Fund	314,716.73	
	Sinking Fund	488,425.87	
	Miscellaneous	80,516.61	
			5,162,318.25
	Total		$5,323,623.46

Allocable Amount: $5,323,623.46 x .0436 = $232,109.98

VERMILION

12/31/70	Abbeville Harbor and Terminal District		$ 7,419.81
12/31/70	Hospital Service District #1		
	Maintenance Fund	4,686.58	
	Sinking Fund	55,174.24	
			59,860.82
12/31/70	Hospital Service District #2		
	Maintenance Fund	13,478.21	
	Sinking Fund	94,347.55	
			107,825.76
12/31/70	Library		148,841.37
12/31/70	Police Jury		
	General Fund	297,997.94	
	Parishwide Road Maintenance	148,841.14	
	Road District Maintenance	395,057.01	
	Sundry Fund	99,224.62	
	Sinking Fund	382,197.31	
			1,323,318.02
6/30/70	Sheriff--Salary Fund		392,964.55
	Total		$2,040,230.33

Allocable Amount: $2,040,230.33 x .0436 = $88,954.04

Total Allocable Revenues: All Parishes $62,699,329.26

Total Allocable Amount to Federal Offshore Employees:

$62,699,329.26 x .0436 = $2,733,690.75

E. Levee Districts

Only three levee districts affecting the coastal parishes could be specified; the others either obtained their revenues from general parish sources which were included above, or they obtained their revenues from other levee districts. The South Louisiana Tidal Water Control Levee District, for example, obtained its 1970 revenues from the Atchafalaya and Lafourche Basis Levee Districts. Although the Atchafalaya Basin Levee District services parishes other than the coastal parishes, most of its area is encompassed by the coastal parishes, so it was included. The Pontchartrain Levee District which services Jefferson as well as Ascension Parish was excluded.

District	State and District Revenues 1970
Atchafalaya Basin Levee District	$1,174,602.59
Lafourche Basin Levee District	1,080,299.74
Lake Borgue Basin Levee District	390,677.67
Total	$2,635,580.00

Allocable amount: $2,635,580.00 x .0436 = $114,911.29

F. Allocated Costs to the State

1. Education

In addition to the costs imposed directly on the coastal parishes, various state agencies have made expenditures in these parishes which have benefited those employed on the offshore facilities as well as their employers. Most significant of these expenditures are those related to education. All local, parish, and state expenditures for education were eliminated in the parish study presented above so that all educational expenses could be presented as one unit. Table 10 presents federal, state and local revenues (1969-70) for elementary and secondary education in the coastal parishes.

Parish and local revenue (Column 6) includes current operating costs as well as the bond redemption funds. Federal revenues were listed for informational purposes but were excluded from the allocable cost base. Total state, parish and local revenues in the coastal parishes for elementary and secondary education in 1970 were $121,133,815.80. Multiplying this amount by the basic ratio (.0436) yields a net allocable amount of $5,281,434.37.

There are seven state vocational-technical schools located in the coastal parishes. Table 11 lists these schools, their location and the state appropriations allocated to these schools for the 1969-70 fiscal year.

TABLE 11
STATE APPROPRIATIONS TO
VOCATIONAL-TECHNICAL AND STATE TRADE SCHOOLS
IN THE COASTAL PARISHES
1969-70

Sowela Technical Institute, Calcasieu Parish	$ 312,024
Sowela Technical Institute, "E" Budget	97,748
Teche Area Vocational-Technical School, Iberia Parish	98,811
Jefferson Parish Vocational-Technical School, Jefferson Parish	348,329
Evangeline Area Tri-Parish Vocational-Technical School St. Martin Parish	102,002
Young Memorial Vocational-Technical School, St. Mary	196,717
South Louisiana Trade School, Terrebonne Parish	125,603
Gulf Area Vocational-Technical School, Vermilion Parish	101,950
Total	$1,383,184

Allocable Costs: $1,383,184 x .0436 = $60,306.82

TABLE 10
EXPENDITURES IN COASTAL PARISHES-PUBLIC ELEMENTARY AND SECONDARY EDUCATION
1969-1970

Parish	[1] Total Revenue	[2] Federal Revenue	[3] State Revenue	[4] Parish and Local Revenues	[5] Employers' Retirement Contribution;Materials of Instruction	[6] State, Parish and Local Revenue (3 + 4 + 5)
ASSUMPTION	2,745,517.76	105,526.94	1,697,690.42	773,395.83	168,904.57	2,639,990.82
CALCASIEU	25,670,824.30	1,317,189.99	12,296,002.17	10,107,026.30	1,950,605.84	24,353,634.31
CAMERON	2,069,595.34	83,764.93	122,752.44	1,728,219.38	134,858.59	1,985,830.41
IBERIA	8,855,053.90	770,854.80	4,849,977.49	2,753,154.97	481,066.64	8,084,199.10
JEFFERSON	41,345,218.31	2,238,790.92	18,698,845.88	17,489,726.72	2,917,854.79	39,106,427.39
LA FOURCHE	11,475,985.02	829,646.77	6,135,311.94	3,891,126.46	619,899.85	10,646,338.25
PLAQUEMINES	2,217,248.02	425,309.03	1,034,947.34	602,001.47	154,990.18	1,791,938.99
ST BERNARD	7,936,262.60	453,627.10	4,161,367.42	2,875,115.71	446,152.37	7,482,635.50
ST MARTIN	5,832,941.31	1,110,130.50	2,927,028.68	1,526,572.41	269,209.72	4,722,810.81
ST MARY	8,677,160.34	640,371.62	4,477,364.73	3,013,137.81	546,286.18	8,036,788.72
TERREBONNE	6,621,390.69	604,064.94	1,214,579.50	4,018,872.45	783,873.80	6,017,325.75
VERMILION	7,030,952.16	765,056.41	3,208,910.89	2,651,253.57	405,731.29	6,265,895.75
TOTAL	130,478,149.75	9,344,333.95	60,824,778.90	51,429,603.08	8,879,433.82	121,133,815.80

Allocable Amount: $121,133,815.80 X .0436 = $5,281,434.37

Source: State Department of Education, Annual Report, 1969-70
Allocations by Source of Revenue - Federal, State and Parish
Computed by Authors

Total state appropriations for these schools totaled $1,383,184 of which $60,306.82 (.0436) are allocable costs to offshore activities.

There are two exceptions to our rule that no statewide costs or administrative overhead will be included in this study. One of these exceptions is higher education. Because of the significance of state appropriations to higher education and because the children of the federal offshore employees are likely to attend institutions of higher education throughout the state the state appropriations to higher education were included. Table 12 presents the 1969-70 state appropriations to all institutions of higher education in Louisiana.

TABLE 12
STATE APPROPRIATIONS FOR INSTITUTIONS OF
HIGHER EDUCATION, LOUISIANA 1969-1970

Grambling College of Louisiana	$ 4,849,878
Louisiana State University and Agricultural and Mechanical College, excluding L.S.U. New Orleans	43,927,687
L.S.U. in New Orleans	6,290,348
Louisiana Tech University	7,071,058
McNeese State University	4,038,993
Nicholls State University	3,392,429
Northeast Louisiana University	5,736,429
Northwestern State University	5,629,296
Southeastern Louisiana University	4,929,404
Southern University and A&M System, Baton Rouge, New Orleans and Shreveport	9,638,851
University of Southwestern Louisiana	8,434,099
	$103,938,472

Allocable Amount: $103,938,472 x .01144 = $1,189,056.12

Source: Acts of Legislature, State of Louisiana, Secretary of State, Regular Session, 1969, Act 10, Schedule 19, p. 49-56.

Because these institutions serve citizens throughout the state and not merely the citizens of the coastal parishes a new ratio had to be developed reflecting federal offshore employment as a percentage of total employment in the state. In the 1970 census, total state employment was reported to be

1,158,245 so the relevant ratio is $\frac{13,250}{1,158,245}$ = .01144. Applying this ratio to total state expenditures on institutions of higher education yields an allocable costs of $1,189,056.12.

2. Department of Highways

Parish expenditures on highway maintenance and construction were included in the parish costs detailed above. State expenditures for highway maintenance and construction in the coastal parishes for the fiscal year 1970-71 are shown below in Table 13.

TABLE 13
STATE EXPENDITURES ON HIGHWAYS IN COASTAL PARISHES
1970-71

Assumption Parish		
Routine Maintenance and Operation	$ 224,503	
Maintenance Projects On System	5,537	
Maintenance Projects Off System	---	
Contracts On System	425,471	
		$ 655,511
Calcasieu Parish		
Routine Maintenance and Operation	$ 783,137	
Maintenance Projects On System	59,694	
Maintenance Projects Off System	6,940	
Contracts On System	2,186,162	
		3,035,933
Cameron Parish		
Routine Maintenance and Operation	$ 712,209	
Maintenance Projects On System	---	
Maintenance Projects Off System	23,180	
Contract Construction	777,563	
		1,512,952
Iberia Parish		
Routine Maintenance and Operation	$ 495,967	
Maintenance Projects On System	40,178	
Maintenance Projects Off System	143,930	
Contracts On System	1,392,241	
		2,072,316

*Whereas most data in this report were obtained for fiscal year 1969-70 or calendar year 1970, a communications problem resulted in state highway costs being reported for the 1970-71 fiscal year.

Jefferson Parish		
Routine Maintenance and Operation	$ 949,347	
Maintenance Projects On System	55,541	
Maintenance Projects Off System	10,556	
Contracts On System	2,838,190	
		$ 3,853,634
Lafourche Parish		
Routine Maintenance and Operation	$ 746,453	
Maintenance Projects On System	68,626	
Maintenance Projects Off System	34,830	
Contracts On System	1,930,455	
		2,780,364
Plaquemines Parish		
Routine Maintenance and Operation	$ 232,561	
Maintenance Projects On System	---	
Maintenance Projects Off System	9,649	
Contracts On System	7,329,984	
		7,572,194
St. Bernard Parish		
Routine Maintenance and Operation	$ 115,121	
Maintenance Projects On System	---	
Maintenance Projects Off System	---	
Contracts On System	254,082	
		369,203
St. Martin Parish		
Routine Maintenance and Operation	$ 356,853	
Maintenance Projects On System	100,334	
Maintenance Projects Off System	57,599	
Contracts On System	26,005,775	
		26,520,561
St. Mary Parish		
Routine Maintenance and Operation	$ 406,396	
Maintenance Projects On System	20,386	
Maintenance Projects Off System	560	
Contracts On System	5,820,462	
		6,247,804

Terrebonne Parish

Routine Maintenance and Operation	$ 723,882	
Maintenance Projects On System	56,400	
Maintenance Projects Off System	---	
Contracts On System	1,267,460	
		$ 2,047,742

Vermilion Parish

Routine Maintenance and Operation	$ 622,809	
Maintenance Projects On System	---	
Maintenance Projects Off System	34,831	
Contracts On System	172,117	
		829,757

Total State Highway Expenditures in Coastal States $ 57,497,971

Allocable Costs: $57,497,971 x .0436 = $2,506,911.54

Total state expenditures on highways in the coastal parishes totaled $57,497,971 of which $2,506,911.54 [.0436] is allocable costs.

3. Department of Public Works

According to the Department of Public Works 1970-71 Biennial Report ten contracts were awarded in the 1969-70 fiscal year for public work projects in the coastal parishes.

TABLE 14
DEPARTMENT OF PUBLIC WORKS CONTRACTS IN COASTAL PARISHES
1969-1970

Contract Number	Parish	Type of Work	Expenditure*
6093	Plaquemines	Empire/Ostrica Locks	$ 500 00
6095	Assumption	Drainage	77,722.82
6099	St. Martin	W-3 Main, W-4 Main	31,511.48
6108	St. Mary	Airport Markers	4,989.30
6109	St. Mary	Radio Beacon	4,480.00
6139	St. Mary	Runway Extension	155,659.92
6155	Terrebonne	Steel Bulkhead	45,147.08
6156	Lafourche	Drainage	5,818.77
6162	Lafourche	Storm Drain	268,331.28
6174	Iberia	Spanish Lake Levee	32,604.00
			$626,764.65

Allocable Amount: $626,764.65 x .0436 = $27,326.94

*Expenditures were obtained from contract records, Department of Public Works

Total value of contracts was $626,764.65 of which 27,326.94 (.0436) was allocable costs. This amount considerably understates the expenditures of the Department of Public Works since it excludes the services of the DPW personnel in the coastal parishes and it also excludes all overhead allocations.

4. Department of Conservation

The Department of Conservation, prior to 1972, bore considerable costs in regulating and aiding production in the federal offshore area. They issued drilling permits, tested wells, held utilization hearings and set allowables. The Department of Conservation estimates that due to differences in the number of wells and other problems associated with crude production, gas production accounts for 30 percent of their budget and crude production 70 percent. The net operating budget of the Department was $1,390,577.66 in 1970. Because the Department's costs allocated to gas and oil production vary, each had to be weighted separately. Total Louisiana crude production in 1970 was 787,138,910 barrels of which 311,602,308 barrels were produced in Zones 2, 3 and 4. Hence 39.6 percent of total crude production took place in Zones 2, 3 and 4. Total gas production was 6,691,805,341 MCF of which 1,920,537,038 MCF was from Zones 2, 3 and 4, or 26.7 percent. Approximately 70 percent of the Department's $1,390,577.66 operating budget was due to oil production = $973,404.36. Approximately 39.6 percent of total crude production was federal offshore so $385,468.13 of their budget can be allocated to federal offshore crude production. Thirty percent of the Department of Conservation's operating budget allocated to natural gas production yields $417,173.30 of which 26.7 percent or $111,385.27 can be allocated to federal offshore natural gas production. Since this is an estimated direct cost no other ratio needs to be applied.

Allocable Costs:

Crude Production	$ 385,468.13
Natural Gas	111,385.27
	$ 496,385.27

5. State Department of Hospitals

The State Department of Hospitals' funds (fiscal 1969-70), as they apply to the coastal parishes, are divided into three groups: (1) State appropriations for Lake Charles Charity Hospital; (2) State appropriations for Lafayette Charity Hospital; and (3) a grouping of the Community Mental Health Clinics, the Division of Alcoholism, and the Belle Chasse State School. Each of these is discussed in turn.

(a) State Appropriations for Lake Charles Charity Hospital

This hospital serves a four-parish area -- Beauregard, Calcasieu, Jefferson Davis, and Cameron, of which two -- Calcasieu and Cameron -- are included in this study. The methodology for computing the per capita appropriations for the coastal area is to first express the population of Calcasieu and Cameron, 1970, as a ratio of total population in the four-parish group, i.e., 153,609 ÷ 206,051 = .7455. Then taking the dollar amount of state appropriations, $924,256, the product (.7455 x $924,256 = $689,033) delineates funds between the coastal and the non-coastal parishes. Finally, "the basic ratio" is applied to the derived expenditures ($689,033 x .0436) for the coastal parishes to estimate the cost of employment on federal lands. The result equals $30,042.

(b) State Appropriations for Lafayette Charity Hospital:

This hospital serves an eight-parish area--Vermilion, St. Martin, St. Mary, Acadia, Lafayette, Evangeline, St. Landry, Iberia. Four of these -- Vermillion, St. Martin, Iberia, and St. Mary -- are included in the coastal parishes. The same methodology as used for Lake Charles Charity Hospital is used to delineate the funds. The results are:

i. Population in Vermilion + St. Martin + Iberia + St. Mary = 193,676

ii. Total pupulation in the eight-parish area = 467,794

iii. Ratio -(a) ÷ (b) = .4140

iv. (.4140) times total state appropriations for Lafayette Charity Hospital (3,883,274) equals $1,607,675, i.e., the allocation proxy for the coastal parishes.

v. Finally, $1,607,675 x the basic ratio (.0436) gives an estimated expenditure on individuals related to Federal offshore work of $70,095.

(c) Community Mental Health Clinics, the Division of Acoholism and the Belle Chasse State School:

Each of these agencies serves all parishes within the State. Data are not available on a parish basis since all purchases and salaries are paid from the central office. The method for computing the allocation among parishes begins by expressing each coastal parish's population as a ratio of the total state population (3,641,306). The results are presented in Column 2, Table 15 . Then the total state appropriations for the three agencies are summed: Division of Alcoholism ($278,820), Belle Chasse State School ($1,160,282), and Community Mental Health Clinics ($3,357,080). The sum equals $4,796,182. Next, the individual parish ratios of Column 2, Table 15 are applied to the sum. The results, Column 3, are estimates of parish allocations from these three agencies. Finally, the sum of the coastal parishes, Column 3 ($1,219,559) is multiplied by "the basic ratio" (.0436) to render an estimate of the funds allocated to those individuals attached to the Federal offshore mineral production.The result is $53,173.

Allocable Amounts:

Lake Charles Charity Hospital	$ 30,042
Lafayette Charity Hospital	70,095
Community Mental Health Clinics, Division of Alcoholism, and the Belle Chasse State School	53,173
Total	$153,310

TABLE 15
ESTIMATED COSTS TO COASTAL PARISHES
COMMUNITY MENTAL HEALTH CLINICS, DIVISION OF ALCOHOLISM
AND BELLE CHASSE STATE SCHOOL
1969-70

	1970 Population	Parish Population as a Ratio of State Population (3,641,306)	Estimated Funds per Parish for Selected Agencies of the Department of Hospitals[1] (Col. 2 x $4,796,182)
Assumption	19,654	.005398	25,890
Calcasieu	145,415	.039935	191,536
Cameron	8,194	.002250	10,791
Iberia	57,397	.015763	75,602
Jefferson	337,568	.092705	444,630
Lafourche	68,941	.018933	90,806
Plaquemines	25,225	.006927	33,223
St. Bernard	51,185	.014057	67,420
St. Martin	32,453	.008912	42,744
St. Mary	60,752	.016684	80,020
Terrebonne	76,049	.020885	100,168
Vermilion	43,071	.011828	56,729
		Total	$1,219,559

Source: Column 1, U.S. Department of Commerce, Bureau of the Census, 1970 Census of Population.

Column 3 and Column 4 - State of Louisiana, State Department of Hospitals.

[1]Sum of State appropriations for: Division of Alcoholism ($372,777), Belle Chasse State School ($1,472,203) and Community Mental Health Clinics ($4,187,087).

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6. Department of Health

Table 16presents parish health unit expenditures by coastal parishes in fiscal year 1970.

TABLE 16
PARISH HEALTH UNIT EXPENDITURES
1969-70

Parish	Total	Sources		
		State	Federal	Local
Assumption	17,946	11,245	---	6,701
Calcasieu	405,599	51,333	43,013	311,253
Cameron	28,525	12,804	---	15,721
Iberia	154,302	34,955	21,767	97,580
Jefferson	778,116	79,619	15,080	683,417
Lafourche	123,565	31,771	9,109	82,685
Plaquemines	----------	Separate Health Unit	----------	----------
St. Bernard	103,654	20,465	10,309	72,880

Table continued

Parish	Total	Sources		
		State	Federal	Local
St. Martin	80,525	16,404	17,335	46,786
St. Mary	74,522	30,574	12,294	31,654
Terrebonne	74,062	39,389	960	33,713
Vermilion	123,290	14,998	25,241	83,051
Total	1,964,106	343,557	155,108	1,465,441

Total State costs for parish health units were $1,964,106 of which $85,635.02 could be allocated to employees on federal offshore lands.

Allocable Amount: $1,964,106 x .0436 = $85,635.02

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7. State Police

Following the rules established at the beginning of the study, no general allocation of State police costs were made. In attempting to specify the variable costs to the coastal parishes, it was discovered that the Division of State Police maintains records only on a troop basis and that each troop encompasses many parishes. Hence, the parishes were weighted by population and the net weight applicable to the coastal parishes was applied to each troop's cost. Taking Troop B, for example, a total of $519,053 was expended by the state on state police salaries and benefits for the parishes listed. Only three parishes-Jefferson, Plaquemines and St. Bernard-are classified as coastal parishes and they have a population of 413,978 out of the five parish population of 1,036,999. Taking this ratio times total costs yields $207,206 allocated to the coastal parishes in Troop B. Total costs allocated to all coastal parishes was $1,484,633 of which $64,730 were allocable costs. It should be noted that the cost data include only salaries, retirement, health and insurance benefits paid by the State.

TABLE 17
STATE POLICE SALARY AND RELATED EXPENDITURES
IN COASTAL PARISHES
1970-71

	1970 Population	Salaries	Benefits	Total Salaries and Benefits
Troop B		$458,295	$60,758	$519,053
*Jefferson	337,568			
*Plaquemines	25,225			
*St. Bernard	51,185			
Orleans	593,471			
St. Charles	29,550			
	1,036,999			
Cost Allocated to Coastal Parishes:	413,978 / 1,036,999 x $519,053 = $207,206			
Troop C		$392,355	$53,376	$445,731
*Iberia				
*St. Martin				
*St. Mary				
100% Allocated to Coastal Parishes:	$445,731			
Troop D		$385,050	$50,182	$435,232
*Calcasieu	145,415			
*Cameron	8,194			
Allen	20,794			
Jefferson Davis	29,554			
	203,957			
Cost Allocated to Coastal Parishes:	153,609 / 203,957 x $435,232 = $327,773			
Troop M		$393,329	$51,300	$444,629
*Assumption	19,654			
*Lafourche	68,941			
*Terrebonne	76,049			
St. John	23,813			
	188,457			
Cost Allocated to Coastal Parishes:	164,644 / 188,457 x $444,629 = $388,428			
Troop I		$484,416	$65,036	$549,452
*Vermilion	43,071			
Acadia	52,109			
Lafayette	109,716			
	204,896			
Cost Allocated to Coastal Parishes:	43,071 / 204,896 x $549,452 = $115,495			

Total Costs to All Coastal Parishes: $1,484,633

Total Allocable Costs $1,484,633 x .0436 = $64,730

Source: Population Data, U.S. Department of Commerce, Bureau of Census, 1970

*Denotes coastal parishes

8. State Mineral Board

The State Mineral Board estimated, upon the basis of man-hour allocations, that their costs directly associated with administering leases in Zones 2 and 3 in 1970 were as shown in Table 18.

TABLE 18
ESTIMATED ALLOCATIONS OF MINERAL BOARD EXPENSES IN ZONES 2 AND 3

Administrative Division	$ 9,000
Audit	10,400
Civil Engineering	7,800
Drafting	6,500
Legal	10,800
Geological and Engineering	29,000
Secretarial	3,500
Travel and Auto Expense	15,000
General Office Expense	15,000
Other Expense	21,000
Total Allocable Costs	$128,000

Source: Mr. Bassett, State Mineral Board

Because the Board estimated the cost of their services in Zones 2 and 3, the entire amount of $128,000 is allocable costs.

9. Wild Life and Fisheries Commission

Information from the Wild Life and Fisheries Commission was not complete, but some data were available. Based on information provided by the Water Pollution Control Division, $53,390 in salaries and $13,150 equipment depreciation could be directly allocated to the coastal parishes. Although a greater proportion of this cost might be attributed to federal offshore, only the amount ($2,901.14) determined by the basic ratio [66,540 x .0436] is included.

The Coastal Water Control section of the Division of Oyster Waterbottoms and Seafood estimated that it spent $94,388.08 in its activities in the offshore

zones. Since the activities of this division are directly related to offshore activities and because their costs have been connected with oil spills, leaks, etc., it was decided that this cost would be allocated on the basis of federal crude production offshore relative to total offshore production or

$$\$94,388.08 \times \frac{311,602,308}{382,182,617} = \underline{\$76,954.53}.$$

Total Costs Allocated to federal offshore employment: $12,921,553.79

Part IV. Summary

The State of Louisiana has, in the past, relied heavily on revenues obtained from severance taxes and mineral royalties and bonuses. Most of these revenues were received from oil and gas extraction on state lands, including Zones 1 and 2 offshore. As production has moved increasingly to the federal offshore lands, Louisiana's income from these sources has declined in relative terms.

The Federal Mineral Leasing Act of 1920 provides that the federal government must rebate to the states 37½ percent of the revenues it receives from royalties, leases and bonuses from mineral production on federal lands situtated within the boundaries of these states. Because the lands situated more than three miles off the Louisiana coast are not considered to be state lands, Louisiana has not received the 37½ percent share. This has led to certain interesting statistical anomalies. For example, if one includes the Outer Continental Shelf the federal government obtained 85.67 percent of its mineral revenue from Louisiana in 1971, but Louisiana received only 0.57 percent of total federal revenue allocated to the Mineral Act states.

In 1970, Alaska received $19,968.83 per employee on federal lands; Montana received $6,754.98 per employee, whereas Louisiana received only $20.97 per employee on federal lands, the lowest among all Mineral Leasing Act States.

A study was made of the costs incurred by the State of Louisiana in providing support facilities for employees on federal offshore land. The costs detailed below are minimum costs because many costs were excluded or could not be sufficiently specified. Data on municipalities were total costs to Louisiana as a percentage of federal revenues from the Outer Continental Shelf adjacent of Louisiana [BLM Receipts] 7.55% for 1970. For 1969 the percentage is 9.94%.

TABLE
SUMMARY OF LOUISIANA'S COSTS IN
SERVICING EMPLOYEES ON FEDERAL OFFSHORE LANDS
MOST DATA FOR FISCAL YEAR 1969-70 OR
CALENDAR YEAR 1970

Costs to Coastal Parishes		
Parish Revenues		
Assumption	$ 37,267.54	
Calcasieu	372,128.51	
Cameron	43,297.67	
Iberia	98,427.40	
Jefferson	1,311,703.93	
Lafourche	41,180.64	
Plaquemines	88,710.41	
St. Bernard	176,528.67	
St. Martin	53,942.55	
St. Mary	189,439.40	
Terrebonne	232,109.98	
Vermilion	88,954.04	
		$2,733,690.75
Levee Districts		114,911.29
Costs to State		
Voc-Tech & Trade Schools	$ 60,306.82	
Public Elem & Secon Edu	5,281,434.37	
Institution of Higher Edu	1,189,056.12	
Dept. of Highways	2,506,911.54	
Dept. of Public Works	27,326.94	
Dept. of Conservation	496,385.27	
Dept. of Hospitals	153,310.00	
Dept. of Health	85,635.02	
Wildlife & Fisheries	79,855.67	
State Police	64,730.00	
Minéral Board	128,000.00	
		10,072,951.75
TOTAL		$12,921,553.79

APPENDIX III

Written Statement by Alaska Governor William A. Egan To the United States Senate Committee on Interior and Insular Affairs in support of S. 2389, a bill to authorize certain revenues from leases on the Outer Continental Shelf to be made available to coastal and other states Submitted May 10, 1974, for the record of a hearing in Washington, D.C.

Mr. Chairman, Members of the Committee:

I appreciate this opportunity to present the views and findings of the State of Alaska concerning the proposals contained in S. 2389, and to go on record in strong support of the proposed legislation. As you know, the state adjacent to, and supporting, offshore oil production activity does not now receive any share of lease and royalty revenues under existing legislation.

The question has been frequently posed as to the socio-economic impact of offshore oil development on communities which serve as the upland "base" of these operations, and in turn the impact on public expenditures at the state level, but the State of Alaska's research uncovers very little in the nature of solid data on the subject. Therefore, we have developed on our own the information in this statement, based on oil production experience in Alaska's Cook Inlet area and in anticipation of planned exploration and production in the Gulf of Alaska within the next several years.

After reviewing the method and findings of our

research, this statement will present the conclusion that oil exploration and production in the Gulf of Alaska can be fully expected to cost virtually 40 cents in state public expenditures for each barrel of oil produced.

The classic economic debate regarding the benefits of development (revenue, employment opportunities, economic growth, etc.) versus the costs (police and fire protection, schools, sewers, water, streets, social services, etc.) has produced many words of spirited supposition on both sides of the matter but little substantiated to-the-point information. Therefore, the objective of our research was to develop a logical and defensible relationship between a unit of offshore petroleum production and a dollar amount of public expenditure. Since the Cook Inlet experience is the only recent instance of offshore development in Alaska, we determined that it would be the model for our study in attempting to draw a rational conclusion as to what could reasonably be expected in future instances of offshore oil development.

All available information confirms that 1968 was the peak year of activity in the development of offshore petroleum resources in Cook Inlet on the Kenai Peninsula. The symptomatic data which we can measure are:

—That population in the Kenai-Cook Inlet Census Division rose rapidly from just over 8,000 persons to nearly 14,000 persons in the years from 1965 to 1970.

—That employment (civilian workforce) rose from a low of just over 3,000 workers to nearly 8,000 workers in the period of 1965 to 1968.

—That school enrollment rose relatively slowly until 1966 when there were 3,000 students, but increased rapidly through 1969 when there were 4,500 students. Thereafter, the enrollment has been slowly rising.

Less critical indicators reveal a similar situation confirming 1968 as the peak of the construction period, such as:

—That full value of real and personal property in the Kenai Borough went from an assessed valuation of just over $100 million in 1966 to nearly $300 million in 1968.

Significant public investment was necessitated because of the impact which placed a heavy burden on the Kenai communities. In 1964, the Borough had only $6 million in public facilities, but by 1971 this had risen to over $24 million. The majority of the new construction is directly attributable to the impact of petroleum development with its attendant needs for facilities and services for the industry.

The $24 million includes school construction, new public buildings such as the Borough Administration Building, a maintenance shop, a warehouse and libraries as well as others. Over $250,000 was spent on emergency portable classrooms to temporarily accommodate the rapid increase in student population.

The basic chronology of events shows that in the beginning of the exploration and development, much

of the workforce was drawn from a base of operations in Anchorage. This necessitated using bachelor living arrangements with workers commuting from the large urban area to the areas where the exploration, development, construction and production were taking place. This situation accounts for the rapid rise in civilian workforce prior to the significant rise in school enrollment figures. As industrial development traceable to the petroleum finds became more stabilized and opportunities for long term development were realized, more stable populations with families located in the area.

These nuances of demographic detail notwithstanding, it is an indisputable fact that the petroleum development which has occurred in the Cook Inlet Basin has had a profound effect on the onshore communities which provide the base for these industrial operations.

The Kenai-Soldotna area, which had a 1960 population of 810, expanded over 500 per cent to a 1970 population of 4,735.

The City of Kenai (an unincorporated village of 778 people at the time of the 1960 Census) provides an excellent example of a petroleum-impacted municipality. Kenai's municipal operating budget in 1965-66 was $438,690, or slightly over $200 per capita, assuming a population of 2,150 at that time. Capital expenditures for that year were authorized at $21,615. Illustrative of the necessity to play "catch-up" in situations of explosive population growth is the 1971-72 Kenai budget, which indicates operating expenses of $1,611,-

634 (or $447 per capita), and a capital improvement budget of $1,483,147.

The City of Kenai presently has a municipal bonded indebtedness totalling $10,000,000 incurred during the "boom" years of the late 1960's. The records indicate that these capital expenditures were made in the following functional areas:

1. Water and sewer expansion
2. Public safety facilities (police and fire equipment, buildings, etc.)
3. Airport expansion and development
4. Street and drainage upgrading and improvements
5. Civic improvements (parks, small boat harbor, civic center, etc.).

Clearly, then, the petroleum-induced population growth in the Kenai area has necessitated significant expenditures to provide an acceptable level of public facilities and services to a greatly expanded local populace.

To determine the impact of offshore petroleum activity on public expenditures, we have settled on a set of assumptions as follows:

A. From exploration to optimum production, a five-year period appears reasonable. (Although social and economic effects on communities will be more extended, it is reasonable to assume that new revenues after that will combine with shared offshore revenues to balance out any further extraordinary expenses as the new population "settles in.")

B. Since many of the public expenditures are in response to demand, and since the Kenai model indicates a lag in gearing up to meet the community needs, we are staggering the time periods of our observations accordingly. (Exploration-production, 1964-1969; public expenditure data, 1966-1971)

C. The Collier Carbon and Chemical and Phillips-Marathon petrochemical operations are considered as spinoffs of the major exploration-development-production operations. Although their construction (1967-1969) and operation is significant, it is absorbed into the total picture of petroleum impact.

D. All figures used (population, school enrollment, capital expenditures, operating expenditures, etc.) are straight-line interpolations between known points in time.

E. 170,000 barrels per day (the average 1968-1971 production is assumed to be optimum, and is further assumed to be the objective of the entire offshore operation.

F. Although a number of Kenai Peninsula communities were affected to some extent by the petroleum development, the major impact was centered in the Kenai-Soldotna area.

G. The City of Kenai budget records, the Borough School District records of Kenai-Soldotna area educational expenditures and the portion of recorded expenditures made by the Kenai Peninsula Borough in the Kenai-Soldotna area constitute the operating budgets that were used in this analysis to determine the public expenditures.

H. Because of interest rates, costs of bonding programs and anticipated useful life of major capital projects, 50 per cent of the public capital investment is used in the computation of annual public expenditures traceable to petroleum impact.

I. "Impact population" is assumed as the difference between the actual (or interpolated) population for a given year, and a "base case" figure arrived at by using a "normal" 6 per cent (compounded) annual growth rate.

The following tables indicate the public expenditures (City of Kenai, Kenai Peninsula Borough, State of Alaska) that pertain to the Kenai-Soldotna area for the chosen impact years (1966-67 through 1970-71).

Table 1

CITY OF KENAI POPULATION

	Base Case	*Actual*[1]	*Impact*[2]
1966-67	1106	2480	1374
1967-68	1172	2700	1528
1968-69	1242	2970	1728
1969-70	1317	3250	1933
1970-71	1496	3533	2037

[1] Interpolated from known data

[2] Impact is equal to base case subtracted from actual population

Table 2

CITY OF KENAI OPERATING BUDGET

	Operating Budget	*Per Capita Expenditures*
1966-67	460,000	185.50
1967-68	480,000	177.78
1968-69	510,000	171.72
1969-70	523,479	161.07
1970-71	1,040,000	294.37

Table 3

KENAI PENINSULA BOROUGH

	Operating Budget[1]	*Per Capita Expenditures*[2]
1966-67	2,230,312	710.29
1967-68	2,736,125	770.74
1968-69	3,621,391	925.82
1969-70	4,467,823	1,034.22
1970-71	6,078,492	1,283.74

[1] Includes school operation and maintenance, planning, assessment and collection in the Kenai-Soldotna area.

[2] Based on actual (interpolated) total population at the Kenai-Soldotna area.

Table 4

CAPITAL EXPENDITURES

	Total (1967-71)	*Total/50 per cent*[1]
City of Kenai	10,000,000	5,000,000
Kenai Peninsula Borough	9,739,000	4,869,500
State of Alaska	6,600,000	3,300,000

[1] See Assumption "H"

The Capital expenditures have been spread evenly over the five-year period.

Applying the per capita operating expenditures to the impact population, and adding in the capital investment, we develop the following information:

Table 5

TOTAL PUBLIC EXPENDITURES

1966-67	4,139,598
1967-68	4,472,462
1968-69	5,015,596
1969-70	5,515,284
1970-71	6,720,170

It is, therefore, the conclusion of our research that the production of Cook Inlet crude oil at a daily average of 170,000 barrels precipitated public expenditures that, over the five-year period studied, were equivalent to a cost of 8.4 cents per barrel of oil produced.

The very different circumstances of Gulf of Alaska exploration and production will, of course, mean a much higher cost in public expenditures per barrel of oil. While the impact on Kenai and Soldotna from Cook Inlet petroleum activity was indeed substantial, as has been outlined above, those were at least established communities when such activity began. In addition, the city of Anchorage also served as a base of operations along with Kenai and Soldotna and it, of course, already possessed all the basic public utilities and other facilities essential to support economic expansion. In each of these cases, the need was only to expand public facilities. In stark contrast, the need in the case of Gulf of Alaska petroleum activity will be to start from scratch and, in fact, build a complete new city as a base of operations somewhere on Alaska's southcentral coastline. Further, construction costs are much, much higher in Alaska's remote rural areas than in the established communities and cities. Thus, it can be very conservatively estimated that the public expenditures involved, on a greatly larger scale, will be at least twice the amount per barrel of oil produced as was the case in the Cook Inlet area. That would put the cost per barrel, even before taking into account the sharp inflation of recent years, at 16.8 cents for each barrel produced.

Adding an inflation factor of 10 per cent a year for the years since 1971, the concluding year of our Cook Inlet study model for this research, and on through 1980, which allows for a five-year development period in the planned Gulf of Alaska production, brings the cost in public expenditures up to 39.6 cents per barrel of oil produced.

It is estimated that Gulf of Alaska production will be 1 million to 1.5 million barrels a day. Taking the 1 million barrel a day case applied to a five-year period after production begins—under the assumption outlined above and even assuming that this proposed legislation would be enacted and the State would receive a substantial share from lease bonus proceeds—the State of Alaska would still be facing a short-fall of several hundred millions of dollars before any revenue was realized from the production of Gulf of Alaska oil.

Gentlemen, the front-end costs in public expenditures for the kind of undertaking planned for the Gulf of Alaska are truly staggering. Therefore, I firmly believe that anything less than the revenue sharing formula proposed in this legislation at hand would work a serious inequity on the people of Alaska and place a cruel burden on Alaska's financial resources.

I strongly urge favorable action on S. 2389, and again, I appreciate this opportunity to present information to you.

HISTORIC SUMMARY OF PETROLEUM DEVELOPMENT: COOK INLET AREA

1958:

—Exploration activity high—17 oil companies had geophysical and geological exploration parties in field.

1959:

—First gas discovery near Kalifonsky Beach on Cook Inlet almost 25 miles south of Swanson River Field.

1960:

—Swanson River Field includes Swanson River Unit and Soldotna Creek Unit. In this area, there were 5 producing wells, 2 dry holes, and 3 new wells being drilled in the field.

—Of 16 wells spudded, 13 were completed as producers.

—Marine terminal at Nikiski was begun in April.

—Construction of a common carrier pipeline system from the Swanson River field to Nikiski on Cook Inlet some 18½ miles to the west was begun in July, 1960.

1961:

—There was a major increase in both exploratory drilling and geophysical activity.

—Six companies placed a total of 7 field parties in Cook Inlet area.

1962:

—Swanson River field has completed its first year of full scale production.

—Oil production averaged 560 barrels per day per well.

—Seven oil wells and three gas wells were completed.

1963:

—Oil was discovered by Shell-Richfield-Standard in Middle Ground Shoal, Cook Inlet.

—The Standard Oil Company refinery was completed on the Kenai Peninsula.

—The Kenai gas field produced 3.1 billion cubic feet of gas.

—Swanson River gas field produced 4.7 billion cubic feet of gas.

1964:

—Two platforms under construction in the Middle Ground Shoal area are due to become operational in 1965, making year-round drilling possible.

—A total of 24 exploratory drilling operations were active.

APPENDIX IV

RESOLUTION BY NATIONAL ASSOCIATION OF ATTORNEYS GENERAL, SPECIAL COMMITTEE ON TIDELANDS

WHEREAS, there is presently pending in the Supreme Court of the United States the Special Master's Report by the Honorable Judge Albert B. Maris in the case of the *United States v. Maine, et al*; No. 35, Original, and;

WHEREAS, the Report of the Special Master states that the coastal states, particularly the states along the eastern seaboard, do not have an interest in offshore production other than that which is given them by Congress or that which is descended to the various states by federal inaction, and;

WHEREAS, the various coastal states, not only along the eastern seaboard but also the Gulf of Mexico, the Pacific and the State of Alaska, support offshore production by performing and furnishing governmental services to the industries and people engaged in the exploration and production of minerals from offshore lands, and;

WHEREAS, coastal states furnish the same governmental services to the offshore industries and people as those furnished the general public; and

WHEREAS, coastal states in addition to providing governmental services are subject to many other burdens incidental to the exploration and production of offshore minerals such as, but not limited to, the risk of oil spills, movement of population to low coastal

areas where hurricane dangers are greatest, and modification of coastal ecology; and

WHEREAS, the exploration for and production of offshore minerals involves considerable environmental, social and economic impact upon the coastal state adjacent to such production and exploration; and

WHEREAS, the impact which this exploration and production of offshore minerals has upon the coastal states was not considered by the Special Master in his report filed with the Supreme Court on August 27, 1974;

NOW THEREFORE, be it resolved that the Special Committee on Tidelands is hereby authorized to file in the proceedings entitled *United States of America v. Maine, et al.*, No. 35, Original, an Amicus Curiae Brief detailing the specific impact which coastal states incur due to exploration and production activity associated with offshore minerals, including but not limited to, environmental, social and economic influences upon those states, all of which entitles the coastal states to an interest in the offshore production, and

BE IT FURTHER RESOLVED that the Amicus Curiae Brief filed in the above mentioned proceedings reflects the views of the Special Committee on Tidelands and does not necessarily reflect the views of the National Association of Attorneys General as a whole.

** Resolution adopted at the 68th Annual Meeting of the National Association of Attorneys General, June 23-26, 1974 at Coeur d'Alene, Idaho.*

B-4878, 11-74

APPENDIX V

OVERSIZE FOLDOUT(S) FOUND HERE IN THE PRINTED EDITION OF THIS VOLUME ARE FOUND FOLLOWING THE LAST PAGE OF TEXT IN THIS MICROFICHE EDITION